HARD RED SPRING WHEAT

QUALITY REPORT

Physical, Chemical, Milling, and Baking Characteristics

1964 CROP

FOR ADMINISTRATIVE USE

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
CROPS RESEARCH DIVISION

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UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
Crops Research Division

Preliminary Report Not For Publication [1]

REPORT OF PHYSICAL, CHEMICAL, MILLING, AND BAKING EXPERIMENTS WITH HARD RED SPRING WHEAT

1964 CROP [2]

by

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[1] This is a progress report of cooperative investigations containing data, the interpretation of which may be modified with additional experimentation. Therefore, publication, display, or distribution of any data or any statements herein should not be made without prior written approval of the Crops Research Division, Agricultural Research Service, United States Department of Agriculture and the cooperating agency or agencies concerned.

[2] Investigations of the Crops Research Division, Agricultural Research Service. The samples were obtained from the cooperative experiments with the State Agricultural Experiment Stations in the spring wheat region.

Hard Red Spring and Durum Wheat Quality Laboratory
Fargo, North Dakota
CR-13-65
February 1965

COOPERATING AGENCIES, STATIONS, AND PERSONNEL

The cooperating agencies and stations conducting the varietal plot and nursery experiments from which these 1964 spring wheat samples were received were as follows:

Minnesota Agricultural Experiment Station

Crookston, Morris, Rosemount, St. Paul, and Waseca.

Montana Agricultural Experiment Station

Bozeman, Cutbank, Dutton, and Sidney.

North Dakota Agricultural Experiment Station

Carrington, Casselton, Dickinson, Fargo, Langdon, and Williston.

South Dakota Agricultural Experiment Station

Brookings, Centerville, Cottonwood, Eureka, Highmore, Newell, and Watertown.

Wisconsin Agricultural Experiment Station

Madison.

Wyoming Agricultural Experiment Station

Sheridan.

A complete list of all cooperating agencies, stations, and personnel for the year will be found in the report by Dr. K. L. Lebsock, "Results on Spring Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 1964," CR-6-65.

INTRODUCTION

Samples of standard varieties and many of the new strains of hard red spring wheat grown in cooperative experiments in the spring wheat region of the United States [3] have been milled each year by the USDA. The flours were assayed chemically and physically and baked into bread to determine the quality characteristics. The purpose of this report is to make available to the cooperators, quality data on the standard varieties and new strains of hard red spring wheat from the 1964 crop.

The same general format and techniques were used in evaluating the wheats as were given in the 1962 and 1963 quality reports. The data contained in this report are comparable to the data of the 1962 and 1963 reports. Certain tables containing average results and also the average results for the 1963 crop for comparisons of the two crop years can be made.

The new format adopted for the 1962 crop report uses the three categories: kernel characteristics, milling performance and baking evaluation, only the deficiencies which may be apparent for the varieties, or outstanding characteristics, are given for sake of brevity. It is hoped that with the use of this format one can quickly ascertain the various characteristics of the sample and any outstanding features or deficiencies which are apparent. Again, for physical characteristics, the mixogram data are given with no specific comments made regarding the patterns, since reference mixograms for each of the general types are presented at the end of the report.

Although the mineral content of the flour of the milling and baking standard was approximately the same as last year, the sample did not mill as easy as last year. This was characteristic of the entire crop, therefore, extractions were generally lower than last year.

Protein content for the area was much more uniform than last year and on the average was higher.

The oxidation requirements for the 1964 crop were generally the same as the 1963 crop, requiring 5 p.p.m. bromate. Some samples showed natural over-oxidation. This was especially true of several samples of the variety Minn. II-54-29, which produced satisfactory bread only if no bromate was used and the fermentation time was reduced to two hours. There was a tendency for the 1963 crop to require slightly more bromate than the 1964 crop for some stations, but 5 p.p.m. gave satisfactory results.

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[3] Lebsock, K. L., Results on Spring Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 1964. USDA, Agricultural Research Service, Crops Research Division. CR-6-65.

SOURCE OF THE SAMPLES

Tests were performed on 788 samples received from field plots, uniform regional nursery, advanced nursery, observation nursery, sawfly nursery, and special studies of the 1964 crop and 108 special samples from the 1963 crop. These samples originated in six states: Minnesota, Montana, North Dakota, South Dakota, Wisconsin and Wyoming. Twenty-four stations from these states were represented, namely, Crookston, Morris, St. Paul, Rosemount, and Waseca in Minnesota; Cutbank, Bozeman, Dutton, and Sidney in Montana; Carrington, Casselton, Dickinson, Fargo, Langdon and Williston in North Dakota; Brookings, Centerville, Cottonwood, Eureka, Highmore, Newell, and Watertown in South Dakota; Madison in Wisconsin; and Sheridan in Wyoming.

A limited number of samples were blended this year. Only those samples which had characteristics which were compatible were blended, and from adjacent areas. The series of special samples from Brookings, Highmore and Watertown, South Dakota were blended. The uniform regional nursery samples blended were the Morris and St. Paul samples, the Carrington and Langdon samples, the Casselton and Fargo samples, the Dickinson, Williston, and Sidney samples, and the Highmore and Watertown samples. Care was taken in choosing the samples for blending such that no extreme differences were apparent in the characteristics of the wheats, and protein contents were comparable. The samples blended were carefully selected to eliminate the effect blending could have when extreme differences exist between samples which would give erroneous results. After blending, the total number of samples milled and baked were 746.

On page 5 are listed the spring wheats which were included in the uniform regional nursery 1964 trials. The variety or cross, the station which developed the variety, the state selection number and the C.I. number are given.

Variety or Cross	Included by	Station Developing	State or Sel. No.	C.I. No.
Crim	Minnesota	St. Paul	II-53-404	13465
Justin	North Dakota	Fargo	ND 102	13462
Lee	Minnesota	St. Paul	Minn. 2776	12488
Marquis	Canada	Ottawa		3641
Pembina	"	Winnipeg	CT-229	13332
Selkirk	"	"	CT-186	13100
Thatcher	Minnesota	St. Paul	Minn. 2303	10003
RL 4125 x Tc^6-Sn^6	Canada	Winnipeg	RL 4159	13775
ND 140 x ND 138	North Dakota	Fargo	ND 229-1	13589
ND 138 x Lee x FPI 186035	"	"	ND 264	13569
ND 40-2-1-76 x Conley	"	"	ND 345	13653
Justin x ND 81	"	"	ND 363	13828
ND 76 x Conley x Justin	"	"	ND 364	13829
Justin x Conley x ND 122	"	"	ND 373	13830
ND 140 x ND 138	"	"	ND 404	13778
Conley x (Lee x FPI 186035)	"	"	ND 405	13779
Conley x ND 122	"	"	ND 406	13780
Ftn - Tc^3x II-44-29 Tc^2	Minnesota	St. Paul	II-53-525-1	13751
II-50-17 x Rmr	"	"	II-54-29	13654
II-50-17 x Rmr	"	"	II-54-30	13655
M 2824^2 x II-50-72	"	"	II-55-11	13773
M 2824^2 x II-50-72	"	"	II-55-12	13774
Crim x II-53-525	"	"	II-58-14	13824
ND 81 - III-58-2 x II-53-546	"	"	II-58-57	13825
Crim x II-53-521	"	"	II-59-9	13826
Crim x II-53-521	"	"	II-59-11	13827
II-50-17 x Pilot	Montana	Bozeman	B60-82	13823
II-50-17 x Pilot	"	"	B60-95	13586
51-3549 x II-50-17	"	"	B60-54	13596
Kenya 184 x Wisc. 250^4	Wisconsin	Madison	6-16-2	13588

METHODS

Briefly, the following methods and terminologies were applied:

Test Weight Per Bushel - The weight per Winchester bushel of cleaned, dry, scoured wheat. To determine the dockage-free test weight on a comparable sample, approximately one pound per bushel should be subtracted from the value given.

1000 Kernel Weight - The 1000 kernel weight was determined by counting the number of kernels in a 10 gram sample of cleaned, picked wheat with an ASCO seed counter 4/.

Kernel Size - The percentages of the size of the kernels (large, medium, and small) were determined on a wheat sizer as described by Shuey 5/.

The sieves of the sizer were clothed as follows:

Top Sieve - Tyler #7 with 2.92 mm. opening.
Middle Sieve - Tyler #9 with 2.34 mm. opening.
Bottom Sieve - Tyler #12 with 1.65 mm. opening.

Potential Yield - The potential yield was determined by multiplying the percentages of the overs of each sieve #7, #9, and #12, by the value of 78%, 73%, and 68%, respectively, The accumulation percentage is given as the potential yield.

Milling - The samples were cleaned by passing the wheat over an Emerson Kicker and Dockage Tester and through a modified Forster Scourer Model 6 4/. The clean dry samples were tempered to 16% moisture and allowed to stand overnight prior to milling.

All samples except the field plot samples were milled on a Brabender Quadromat Junior Mill 4/. The mill was equipped with a #18 wire on the drum sieve. The throughs of the #18 wire were rebolted on a Strand sifter equipped with a #60 Tyler sieve. The sample was sifted for 1 minute. The throughs of the #60 wire were classified as flour and this was the material tested.

The field plot samples were milled on a Buhler Continuous Experimental Mill. This mill has been slightly modified to give results more comparable to commercial milling. The break scalping sieves were clothed with #54 stainless steel wire, the reduction scalping sieves with #58, #66, and #105 stainless steel wires for the first, second and third reduction, respectively. All of the flour sieves were clothed with #135 stainless steel wire.

4/ Mention of a trade product, equipment or a commercial company in this publication does not imply its endorsement by the United States Department of Agriculture over similar products or companies not named.

5/ Shuey, William C. A wheat sizing technique for predicting flour milling yield. Cereal Science Today 5:71-72, 75. 1960.

All 6 flour streams were combined to give the patent flour. The extraction of a good milling wheat using this flow is approximately 68%. This is comparable to a commercial "long patent" extraction flour. At this flour extraction of the wheat, the changes in flour ash are most sensitive to changes in percent extraction.

<u>Protein Content</u> - The protein was calculated by multiplying the factor of 5.7 times the percent nitrogen as determined by the standard Kjeldahl procedure.

<u>Mineral Content or Ash Content</u> - This was determined by measuring the residue of the minerals left after incinerating the sample for approximately 16 hours at 565° C. The results were reported as percentage of the sample which was incinerated.

<u>Mixogram</u> - The mixogram was determined by using 30 g. of flour and adding 20 cc. of water. The sensitivity spring setting was set at 10. All mixograms were run with constant weight of flour and volume of water. Absorptions reported were adjusted according to the height of the mixogram. The correction factor was determined from a series of flours by varying the amount of absorption.

<u>Mixogram Pattern</u> - The reference mixogram patterns given at the end of the report demonstrate the different types of mixograms which were obtained. A single number is assigned each pattern to characterize and simplify the classification of the curves, the larger number indicating stronger curve characteristics.

<u>Baking Procedure or Formula</u> - The baking formula used was as follows:

100% flour	3% milk D.S.M.
2% salt	3% yeast
5% sugar	2% shortening (Crisco, melted)

The sample was mixed to development in a National Manufacturing mixer <u>4</u>/, for the 25 g. sample the Micro mixer, for the 100 g. sample the 100 g. special mixer size.

<u>Absorption</u> - This was the water, expressed as percent of the flour, required to bring the dough to proper consistency.

<u>Crumb Color</u> - This value was determined by comparing the loaf of the tested sample against a baking standard. This standard was selected as an average for the crop year for the spring wheat area.

<u>Loaf Volume</u> - This was volume of the baked loaf as determined by seed displacement.

All values (Protein, Ash, and Absorption) were reported on a 14% moisture basis.

DISCUSSION

The following discussion presents some of the basis for the techniques and criteria used in evaluating the samples. There are four major evaluation categories used: Kernel characteristics, to characterize the kernel; milling performance, to evaluate the general milling characteristics; mixogram patterns, to classify the flour as to type: and baking evaluation, to rate the flour as to over-all baking.

Each evaluation category can be important. A sample could be of a sufficiently poor quality for a given category to eliminate it from possible future testing. However, a sample submitted for the first time and found to be questionable should be tested again to establish if it has a desirable or undesirable classification. A sample which is consistently rated as questionable should be discarded.

All samples are compared and graded according to a milling and baking standard which represents a blend of the crop year blended to a known quality. The ratings are based on an over-all area evaluation for the spring wheat producing area. Therefore, certain areas may have all samples, even the named varieties, which will be classified as questionable to undesirable, when normally they may exhibit satisfactory strength in another area. It is necessary to grade on this basis so that directly comparable results of the over-all spring wheat producing area can be observed. The quality of the various varieties and the relative strength of the crops grown in different sections of the spring wheat area can thus be compared.

An area may produce low protein wheats which give large and plump kernels, good milling, and kernel characteristics, but low protein, and unsatisfactory baking properties such as short mixing time, low loaf volume, and weak dough characteristics. The wheat from this area could not be considered as a strong spring wheat and would not maintain the quality of the spring wheat producing area. A good variety should have tolerance to a wide range of environmental conditions and the over-all picture taken into consideration for establishing these varieties.

A sample rated as satisfactory to questionable has only a very minor fault; however, if it is questionable to satisfactory, the fault is more serious, but in either case the fault is not sufficient to be considered as detrimental. For questionable to unsatisfactory, and unsatisfactory to questionable, the faults are much more serious and the sample would have little future promise of being accepted if such faults are consistent.

When more than one of the factors are below the standard, the variety is marked as questionable or undesirable. If sufficient data accumulated over a two or three year period show a definite deficiency, the variety should be discarded. If a major fault is found, the variety is undesirable and should be discarded.

Kernel Characteristics are important in determining the initial value of the wheat and, if extremely poor, could disqualify a new variety from further consideration. Because of the present grading system, it is desirable to have a good test weight. If a sample has a low 1000 kernel weight and small kernel size distribution, it would be considered a poor sample for milling because of the high ratio of bran to endosperm. Therefore, it is desirous to have plump kernels. Wheat ash is an important factor when comparing a variety against other standard varieties. If a sample would have consistently higher wheat mineral content, it would enhance the probability of having high flour ash. Low protein would not be desirous when comparing with standard varieties, because in a low protein crop year the probability of it having such a low protein as to be undesirable is very probable. Therefore, the protein must also be considered as a characteristic when comparing other varieties grown in the same locality.

Milling Performance is very important, especially the sub-category of milling characteristics. If low extractions or high flour ash are obtained, this becomes a major factor and is quite unacceptable from a commercial milling standpoint. All flour mineral contents are reported at a constant extraction of 65% so that the figures are directly comparable. As a rule of thumb, one can approximate that each point of ash (0.01%) is equivalent to approximately 2% in extraction.

Milling characteristics are important. A sample which tends to be soft in character requires a different milling technique to be milled properly. On commercial mills flowed for hard vitreous spring wheats, soft milling characteristics cause great difficulty. Therefore, if a sample shows softness in character, it is considered to be undesirable. Likewise, a sample which is extremely hard and vitreous will cause difficulty. Both types of wheat (soft or vitreous) require different roll pressures, clothing, sifter surface, and temper to be milled properly. If these wheats are blended with normal milling wheats, improper results are obtained, since these characteristics are not necessarily compatible or additive. Normal to soft score indicates that the sample shows a tendency toward softness of character on the flour mill stocks and extraction. This would indicate that the sample may give some difficulty for certain mill streams and an adjustment would either have to be made in the milling flow, or in tempering procedures to compensate for these differences. The properties of this wheat may or may not be compatible with other wheats with which it may be blended, therefore, it is important to maintain varieties with as uniform milling characteristics as possible.

The amount of protein recovered in the flour for a sample is of importance. The high protein wheats yielding low protein flours are not desirable. Such a wheat would have much of the protein distributed in the outer portion of the kernel which would result in excessive protein in the feed. Therefore, higher protein in the wheat would be necessary to yield a flour of comparable protein to a wheat which gives good flour protein recovery.

Mixogram Patterns or Farinogram Patterns are important in estimating the strength and mixing tolerance or potential mixing tolerance of a flour. A long flat curve is more desirable than a short peaked curve; however, an extremely long curve may be undesirable, since the flour would require excessive mixing to develop. The pattern of the curve is of importance as well as the length, and both must be considered.

Baking Evaluation takes into account the flour absorption, mixing time, dough characteristics, loaf volume and machinability. A sample which has low absorption would be unsatisfactory, compared to other spring wheats with normal absorption. A sample with extremely short mixing time would also be considered undesirable as a good strong spring wheat. When a sample is in the minimal range for these values, it is considered as questionable until further testing demonstrates whether a definite deficiency exists.

Doughs having mellow to weak dough properties show a tendency towards weakness. Also, for mellow to strong, the dough is mellow, but has a tendency to be strong, and a strong to mellow dough is just the reverse. Since these characteristics are subjective rather than objective, it is necessary at times to estimate the tendency; therefore, the necessity exists for apparent double grades.

The grain or appearance of the interior of the loaf shows how well the sample stood up during baking and may point out or explain some deficiencies which have been observed during the baking test.

Loaf volume indicates potential strength of the flour in a different manner than mixing time or dough characteristics, in that it shows the ability or lack thereof of the dough to expand under pressure and to contain the entrapped gases during this expansion. Weak flours act much like rotten balloons which burst when blown up and collapse, thus yielding low loaf volume or extremely large volume and large holes in the interior of the loaf. Low protein flours and lifeless (dead) doughs exhibit the properties similar to putty and do not expand during fermentation or baking and give low loaf volume. Tough and very bucky doughs are bound too tight and impede expansion of the gases causing low loaf volume.

General Evaluation rating is given for varieties which have been tested at least for two crop years. This evaluation takes into account the various grading factors and the results of the crop years as an over-all rating. The main defects and outstanding features are discussed. A variety which shows some promise with outstanding agronomic characteristics should be seriously considered and looked at in large plots, if it has not been previously, providing other sufficient information has been obtained. A sample which shows little promise should be discontinued.

FIELD PLOT NURSERY SAMPLES

One hundred and six field plot nursery samples were received from three states and seven stations. The data for the individual samples are given in Tables 1 through 3. In Table 4 are given the averages for the varieties by states. Also, for each state is given the 1963 and 1964 averages for the named commercial varieties of Crim, Justin and Selkirk for each of the states where data is available, as well as the averages for these varieties for the crop years 1963 and 1964.

Minnesota Samples

Sixty samples were received from four Minnesota stations: Crookston, Morris, Rosemount and Waseca. Twenty of these samples were name varieties, Crim, Justin, Pembina, Selkirk and Thatcher. Forty of these samples were ten unnamed varieties, Minnesota Sel. II-52-238, II-53-525-1, II-54-29, II-54-30, II-55-11, II-55-12, II-58-14, II-58-57, II-59-9, and II-59-11. The results for each of these varieties for the individual stations are given in Table 1, and the averages in Table 4.

II-52-238 (C.I. 13572)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Questionable. The extraction was satisfactory, however, the mineral content of the flour is higher than desired.

Baking Evaluation - Unsatisfactory to Questionable. The mixing time is shorter than desired and absorption low.

II-53-525-1 (C.I. 13751)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. Extraction was satisfactory, however, flour ash was much higher than desired and this wheat shows a tendency to be soft in milling characteristics.

Baking Evaluation - Questionable to Satisfactory. The mixing time is shorter than desired.

General Evaluation - Questionable. Three years of testing on this sample in field plots for Minnesota has shown satisfactory kernel characteristics, questionable milling performance due to slightly higher ash and a tendency to be soft in character, and from satisfactory to undesirable in baking evaluation, primarily due to the short mixing time as the major fault. Absorption, loaf volume and crumb color have all been satisfactory. This variety shows some promise.

II-54-29 (C.I. 13654)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable to Unsatisfactory. Poor grain and minimum absorption and volume were the major faults of this sample.

General Evaluation - Unsatisfactory. This sample shows a definite tendency to be weak during fermentation and baking, which is exhibited by the poor grain and low loaf volume. Some samples showed definite signs of natural over oxidation and it was necessary to reduce fermentation time by one hour and remove the bromate to produce a satisfactory loaf of bread. Because of this sensitivity this should not be considered as a promising variety although it does have excellent milling characteristics.

II-54-30 (C.I. 13655)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Unsatisfactory to Questionable. This sample shows low absorption.

General Evaluation - Unsatisfactory to Questionable. Two years experience with this sample show a definite tendency for low absorption which would not be desirable, although milling characteristics are excellent.

II-55-11 (C.I. 13773)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable. This sample was satisfactory in all baking characteristics except absorption which was approximately 2% below the desired level.

II-55-12 (C.I. 13774)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable to Unsatisfactory. This sample had minimum mixing time and showed a tendency to have a weak dough.

II-58-14 (C.I. 13824)

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. This sample had a low extraction and gave high ash with tendency to have soft milling characteristics.

Baking Evaluation - Questionable. Primarily due to grain.

II-58-57 (C.I. 13825)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable. Tendency to have weak dough.

II-59-9 (C.I. 13826)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Questionable. This sample showed a tendency to be soft in milling character and gave slightly higher ash than desirable in the flour.

Baking Evaluation - Satisfactory. Although one sample did show poorer color than desired.

II-59-11 (C.I. 13827)

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. High ash, low extraction, and tendency to be soft in milling characteristics.

Baking Evaluation - Questionable. Tendency to have weak dough.

North Dakota Samples

Thirty-six samples were received from two North Dakota stations: Dickinson, and Williston. Nine samples were new varieties, Minnesota II-53-525-1, II-54-29, II-54-30, and Montana sample B60-54, and RL-2938. The results of these varieties are given in Table 2 and the state averages in Table 4. No samples were received in 1963, therefore, no comparison can be made between the 1963 and 1964 crops.

II-53-525-1 (C.I. 13751)

Kernel Characteristics - Questionable. The 1000 kernel weight was low and the kernel size distribution was minimum.

Milling Performance - Satisfactory to Questionable. The ash was slightly higher than desirable in the flour.

Baking Evaluation - Unsatisfactory to Questionable. The mixing time was extremely short for this sample.

II-54-29 (C.I. 13654)

Kernel Characteristics - Satisfactory to Questionable. Tendency for small kernels and low 1000 kernel weight.

Milling Performance - Very Satisfactory.

Baking Evaluation - Questionable. This variety showed a tendency to natural over-oxidation and gave lower loaf volume than desired with poorer grain.

II-54-30 (C.I. 13655)

Kernel Characteristics - Questionable. The 1000 kernel weight was low and small kernel size distribution.

Milling Performance - Very Satisfactory.

Baking Evaluation - Unsatisfactory. Low absorption and short mixing time.

60-54 (C.I. 13596)

Kernel Characteristics - Questionable to Satisfactory. Small kernel size distribution.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. Minimim mixing time.

RL 2938 (C.I. 13463)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

Wisconsin Samples

Ten samples were received from Madison, Wisconsin station. Three of these samples were new varieties. Seven samples were the named varieties Crim, Henry, Justin, Lathrop, Lee, Selkirk and Thatcher. The three unnamed varieties were Wisc. 255, 6-12 and H515B 7-2-12-5. The results are given in Tables 3 and 4.

The protein contents of the 1964 crop were higher than the 1963 crop and similar to the 1962 crop. The improved baking performance of the samples reflected the increased protein content over last year.

Wisc. 255 (C.I. 13588)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. This sample showed higher ash in the flour than was desirable.

Baking Evaluation - Satisfactory. This sample was very satisfactory although approximately 1/2% lower in absorption than desired.

General Evaluation - Satisfactory to Questionable. The milling and baking performance of this sample has shown it to be satisfactory with a tendency to give slightly lower absorption than is desired for spring wheats. This appears to be the only major fault of the sample. Therefore, the sample shows some promise.

6-12

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. Tendency to show higher ash than desirable in the flour.

Baking Evaluation - Satisfactory.

General Evaluation - Questionable to Unsatisfactory. This variety has shown over a three-year testing period to be somewhat erratic. It definitely has shown tendencies to give higher ash in the flour than desirable. On two occasions (for the two crop years which had approximately the same protein) it was rated unsatisfactory and satisfactory due in one case to the weak dough. In one year it gave low absorption and was rated questionable to unsatisfactory. Therefore, this variety does not show promise.

H515B 7-2-12-5

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable. Low absorption.

General Evaluation - Questionable. This sample has shown good kernel and milling performance and with the exception of consistent low absorption in the baking, has shown satisfactory baking characteristics. Therefore, this sample does show some promise.

UNIFORM REGIONAL NURSERY SAMPLES

A total of 420 Uniform Regional Nursery samples were received. These samples represented 14 stations from six States. Three blends were made, two blends comprising two stations each and one blend comprising three stations, where the wheats were compatible and of close origin. To determine the compatibility, the wheats must be within 1/2 percent in protein content, similar kernel size distribution, test weight within 1/2 pound, and the same kernel textures. Any of the samples, regardless of the origin, which showed differences in the characteristics and were not compatible, were milled as individual samples to eliminate any possible erroneous results due to incompatibility. Thus, a total of 270 samples were milled and baked, which included the blends and individual samples. Thirty samples were received from each of the stations. Twenty-three new varieties or selections were included for quality evaluation in the Uniform Regional Nursery samples. The remainder of the samples were the commercially named varieties Crim, Justin, Lee, Marquis, Pembina, Selkirk and Thatcher.

Sixty samples were received from the two Minnesota stations of Morris and St. Paul. Data are given in Tables 5 and 6, respectively.

Sixty samples were received from two stations in Montana, Bozeman and Sidney. However, due to the similarity between the Sidney station samples and the Dickinson and Williston samples of North Dakota, this station's samples were blended with the two North Dakota station samples, and the data are included in Table 10 with North Dakota Uniform Regional Nursery samples. The Bozeman data are given in Table 7.

One hundred and eighty samples were received from six North Dakota stations of Carrington, Casselton, Dickinson, Fargo, Langdon, and Williston. Due to the similarity and compatibility of wheats from these stations, three blends were made of the samples, namely, Carrington and Langdon, Casselton and Fargo, and Dickinson, Williston and Sidney, Montana. The results for these blends are given in Tables 8, 9, and 10, respectively.

Sixty samples were received from two stations, Highmore and Watertown in South Dakota. Because of the similarity of these samples they were blended and the data are given in Table 11.

Thirty samples were received from Madison, Wisconsin station. The data are given in Table 12.

The same thirty samples were submitted from the Sheridan, Wyoming station. The data are given in Table 13.

In Table 14, are given the average results for each of the thirty samples submitted from the six States and 14 stations. These results were obtained by averaging the results given in Tables 5 through 13 of the individual or blended samples. However, as in previous reports, for simplicity and brevity of the report, each variety will be discussed from the general

over-all average of the results given in Table 14, rather than the individual stations. Where a selection or variety has been in the Uniform Nursery for at least two crop years, a General Evaluation is given and comments regards the variety.

In addition to the averages of all stations, in Table 15, are given the averages by States of the six main varieties of Crim, Justin, Lee, Pembina, Selkirk and Thatcher, with the exclusion of Marquis. This, then gives a comparison of the varieties by States. Also, given in this table are the averages by States of the six varieties for comparative purposes, as well as the 1964 grand average is given for Minnesota, Montana, North Dakota, South Dakota and Wisconsin, and the 1964 averages for the same States on the same varieties for comparison of the two crop years. The over-all average results indicate that the 1964 crop has slightly better kernel characteristics and better baking characteristics than the 1963 crop. However, it is not as good a milling crop as last year, giving less extraction and higher ash. The average mixogram pattern is also down slightly, although the bake mixing time is slightly better.

The average results for the new varieties or selections were:

RL 4159 (C.I. 13775)

Kernel Characteristics - Questionable to Satisfactory. Small kernel size distribution and low 1000 kernel weight.

Milling Performance - Questionable. The variety gave low extraction with a tendency towards high ash.

Baking Evaluation - Questionable to Unsatisfactory. Short mixing time, minimum baking absorption.

General Evaluation - Questionable to Unsatisfactory. For the past two crop years, it has consistently given low 1000 kernel weight and small size kernel distribution. Milling performance has been borderline. Baking characteristics show it to have short mixing time, tendency towards weak doughs and minimum absorption. These results would indicate the variety on an over-all quality evaluation, would show little promise.

ND 229-1 (C.I. 13589)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. Low extraction.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. For three crop years this variety has shown a tendency to have low test weight, minimum 1000 kernel weight and small kernel size distribution. The milling performance has been somewhat erratic showing a tendency to vary from crop year and locality, which would be questionable. The baking performance has been generally good with the variety showing good mixing time. This variety does show some promise.

ND 264 (C.I. 13569)

Kernel Characteristics - Satisfactory to Questionable. Small kernel size distribution.

Milling Performance - Questionable to Unsatisfactory. Low extraction and high ash.

Baking Evaluation - Satisfactory to Questionable. Somewhat erratic results.

General Evaluation - Questionable. The rating of this variety is based on three crop years. The variety shows definite tendencies to give inconsistent results for different areas, therefore, from the over-all rating, would show little promise.

ND 345 (C.I. 13653)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Satisfactory. Low extraction.

Baking Evaluation - Satisfactory to Questionable. Somewhat erratic results.

General Evaluation - Satisfactory to Questionable. This variety shows a tendency to give poor results in some areas and some crop years; therefore, the variety was rated satisfactory-questionable, however, it does show promise.

ND 363 (C.I. 13828)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Satisfactory. The variety gives low extraction.

Baking Evaluation - Satisfactory to Questionable. Variety shows a tendency to have minimum mixing time.

ND 364 (C.I. 13829)

Kernel Characteristics - Questionable to Satisfactory. Minimum test weight, low 1000 kernel weight and small kernel size distribution.

Milling Performance - Questionable to Satisfactory. Low extraction.

Baking Evaluation - Satisfactory.

ND 373 (C.I. 13830)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. Low extraction.

Baking Evaluation - Questionable. Minimum mixing time.

ND 404 (C.I. 13778)

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory to Questionable. Low extraction, high ash.

Baking Evaluation - Satisfactory.

General Evaluation - Questionable. The rating of this variety is based primarily on the milling characteristics, it has consistently given low extraction for the past two year years. Baking results for the 1964 crop are satisfactory, however, the 1963 crop were questionable to unsatisfactory due to low absorption and tendency to exhibit weak doughs.

ND 405 (C.I. 13779)

Kernel Characteristics - Satisfactory to Questionable. Minimum test weight.

Milling Performance - Questionable. Low extraction.

Baking Evaluation - Satisfactory to Questionable. Poor interior or grain of the loaf.

General Evaluation - Questionable. This variety was rated on an over-all basis of questionable from the results of the two crop years. The same characteristics were prevalent for both years of low extraction and poor interior of the loaf and would show little promise.

ND 406 (C.I. 13780)

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Extremely low extraction, soft milling characteristics.

Baking Evaluation - Questionable to Unsatisfactory. Minimum mixing time, poor interior of loaf and low loaf volume.

General Evaluation - Unsatisfactory. The rating of this variety was based on the unsatisfactory soft milling characteristics and low extraction. The baking results have consistently shown minimum mixing time, poor interior of the loaf and low loaf volume. This variety has no promise.

II-53-525-1 (C.I. 13751)

Kernel Characteristics - Satisfactory to Questionable. Low 1000 kernel weight and small kernel size distribution.

Milling Performance - Questionable to Unsatisfactory. Low extraction and tendency to have high ash.

Baking Evaluation - Questionable. Minimum mixing time.

General Evaluation - Questionable. This variety, based on three crop years, has consistently shown small average kernel size and low 1000 kernel weight. It has given low flour extraction and a tendency to show soft milling characteristics. The main fault in the baking performance, has been minimum mixing time and somewhat erratic results as to absorptions. Therefore, this variety would show some promise but is not outstanding due to these characteristics.

II-54-29 (C.I. 13654)

Kernel Characteristics - Satisfactory to Questionable. Minimum kernel size distribution.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable. Although this sample has good mixing time it has poor interiors, low loaf volume and has been very erratic in results from thedifferent areas.

General Evaluation - Unsatisfactory. The rating of this variety is based on three crop years, with the major fault being the baking results. This variety has shown excellent milling characteristics and performance. However, the baking results have been extremely erratic and in most cases have given minimum absorption, poor dough characteristics and low loaf volume. In some instances, it has required special treatment to produce a satisfactory loaf of minimum quality. Therefore, it shows no promise.

II-54-30 (C.I. 13655)

Kernel Characteristics - Questionable to Satisfactory. Small kernel size distribution.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable to Unsatisfactory. Minimum absorption, poor interior and minimum loaf volume.

General Evaluation - Questionable to Unsatisfactory. Kernel characteristics have been variable ranging from questionable to unsatisfactory. Milling performance has been good to excellent; however, the baking results show this sample to have low bake absorption, minimum quality for the interior and minimum loaf volume. Therefore, this variety shows little promise based on the results of three years testing.

II-55-11 (C.I. 13773)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Satisfactory. Minimum extraction.

Baking Evaluation - Questionable to Satisfactory. Erratic results.

General Evaluation - Based on two crop years this variety has a tendency to give erratic results from different areas both in milling and baking. Therefore, this variety is rated as showing some promise rather than definite promise.

II-55-12 (C.I. 13774)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Satisfactory. Low extraction.

Baking Evaluation - Satisfactory to Questionable.

General Evaluation - Questionable to Satisfactory. Based on two crop years' results, this variety rated down primarily because of the erratic results. In many instances the rating of questionable was assigned because the results were at a minimum, however, the sample shows some promise.

II-58-14 (C.I. 13824)

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory to Questionable. Extremely low extraction and high ash.

Baking Evaluation - Questionable to Satisfactory. Primarily low loaf volume.

II-58-57 (C.I. 13825)

Kernel Characteristics - Questionable. Low 1000 kernel weight and small kernel size distribution.

Milling Performance - Unsatisfactory to Questionable. Low extraction, high ash.

Baking Evaluation - Questionable to Satisfactory. Minimum loaf interior and erratic results.

II-59-9 (C.I. 13826)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. Low extraction.

Baking Evaluation - Satisfactory to Questionable. Somewhat erratic results.

II-59-11 (C.I. 13827)

Kernel Characteristics - Satisfactory to Questionable. Minimum kernel size distribution.

Milling Performance - Unsatisfactory to Questionable. Low extraction, high ash and soft milling characteristics.

Baking Evaluation - Satisfactory to Questionable. Somewhat erratic results.

B60-82 (C.I. 13823)

Kernel Characteristics - Questionable to Satisfactory. Minimum 1000 kernel weight and small kernel size distribution.

Milling Performance - Questionable to Unsatisfactory. Low extraction.

Baking Evaluation - Satisfactory to Questionable. Erratic results and tendency for minimum absorption.

B61-95 (C.I. 13586)

Kernel Characteristics - Questionable to Satisfactory. Low 1000 kernel weight and small kernel size distribution.

Milling Performance - Questionable to Unsatisfactory. Low extraction.

Baking Evaluation - Questionable to Satisfactory. Minimum absorption and tendency towards poor interior. Erratic results.

General Evaluation - Questionable. The rating of this variety is based on three crop years. This variety has consistently shown minimum kernel size distribution and low extraction with a tendency towards soft milling characteristics on many occasions. The baking performance has not been outstanding showing minimum absorption and somewhat poor interior of the loaf. Therefore, this sample shows little promise.

60-54 (C.I. 13596)

Kernel Characteristics - Satisfactory to Questionable. Tendency to have small kernel size distribution.

Milling Performance - Questionable. Low extraction.

Baking Evaluation - Questionable to Satisfactory. Minimum mixing time, low absorption and tendency towards poor interior.

Wisc. 6-16-2 (C.I. 13588)

Kernel Characteristics - Satisfactory to Questionable. Slight tendency for small kernel size distribution.

Milling Performance - Unsatisfactory to Questionable. Low extraction, high ash.

Baking Evaluation - Satisfactory.

General Evaluation - Questionable to Satisfactory. The rating is based on three crop years. The kernel characteristics are generally good with a tendency to show somewhat small kernels. The main fault with this variety is a higher than desired ash in the flour and a tendency for low absorption. The baking performance over-all is satisfactory but does give erratic results on occasion for locality and crop year, however, the sample does show promise.

ADVANCED NURSERY SAMPLES

Sixty-five samples were received from the advanced nurseries of South Dakota and Wisconsin. Fifty-two samples were from the South Dakota advanced nursery series and thirteen from Wisconsin. The results of these samples are in Tables 16 through 18.

South Dakota Samples

Highmore H-64 AWI Nursery

Twenty-seven samples were received from the Highmore Station. Of this series, two samples were checks and the rest were new varieties, two of which have been given a C.I. No., Minn. II-53-525-1 and Minn. II-54-29. Only eight of the remaining twenty-three samples rated better than questionable to unsatisfactory. The unsatisfactory rating was due primarily to extremely short mixing time which went as low as one minute, which would be very undesirable. Most of the doughs were very weak for the series and should not be considered for further evaluation. Only those samples which rated questionable to unsatisfactory or better are discussed. The extremely high wheat ash gave rise to high flour ash for these samples and in most cases were rated unsatisfactory in milling performance because of this. Results are given for the individual samples in Table 16.

SD 621

Kernel Characteristics - Satisfactory.

Milling Performance - Very Unsatisfactory. This sample had very soft characteristics and gave extremely low flour extraction and high flour ash.

Baking Evaluation - Questionable to Unsatisfactory. While most of the characteristics were good for this sample, it did have very short mixing time.

SD 622

Kernel Characteristics - Satisfactory.

Milling Performance - Very Unsatisfactory. This sample gave very low extraction and high flour ash.

Baking Evaluation - Questionable to Unsatisfactory. This sample had good baking characteristics, with the exception of short mixing time.

SD 624

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Extraction was good but ash in flour extremely high. In all probability this variety would be rated satisfactory with a normal wheat ash.

Baking Evaluation - Questionable to Unsatisfactory. Baking characteristics good except for short mixing time.

SD 625

Kernel Characteristics - Satisfactory to Questionable.

Milling Performance - Unsatisfactory. Low extraction, high ash.

Baking Evaluation - Satisfactory.

SD 626

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. High flour ash. This variety also would probably have satisfactory milling performance with normal wheat ash.

Baking Evaluation - Questionable to Unsatisfactory. Baking performance good with the exception of short mixing time.

SD 627

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Low extraction, high ash.

Baking Evaluation - Satisfactory.

II-53-525-1 (C.I. 13751)

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Lower extraction than desired and high flour ash.

Baking Evaluation - Questionable to Unsatisfactory. Short mixing time.

SD 6210

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. High ash.

Baking Evaluation - Satisfactory to Questionable. Tendency to have poor grain and low loaf volume.

SD 6211

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Low extraction. High ash.

Baking Evaluation - Questionable to Unsatisfactory. Baking characteristics generally good. Short mixing time.

II-54-29 (C.I. 13654)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

Highmore H64 AWII Nursery

Twenty-five samples were received from this nursery. Three of which were check samples Pembina and Lee. Only two of the remaining twenty-two samples should be considered for further study. The mixing times are extremely short and most of the samples have weak dough characteristics. The results are given in Table 17.

SD 632

Kernel Characteristics - Satisfactory to Questionable. Tendency to have small kernels.

Milling Performance - Unsatisfactory. Low extraction, and tendency towards soft milling characteristics.

Baking Evaluation - Unsatisfactory to Questionable. All characteristics were good for this sample except short mixing time.

SD 636

Kernel Characteristics - Questionable. Low 1000 kernel weight and small kernel size distribution.

Milling Performance - Unsatisfactory. High flour ash.

Baking Evaluation - Satisfactory. This is one of the best samples from the South Dakota Advanced Nursery Series.

Note: The South Dakota samples appeared to require more oxidation than any of the other series from the area.

Madison, Wisconsin Advanced Nursery Samples

Thirteen samples were received from the Madison, Wisconsin nursery. Five of these samples were name varieties, Henry, Justin, Lathrop, Lee and Thatcher. The results are given in Table 18.

4-2-4-1

Kernel Characteristics - Satisfactory.

Milling Performance - Very Satisfactory. This sample gave low ash, good yield.

Bake Evaluation - Questionable. Baking characteristics good with the exception of low absorption.

II-53-525-1 (C.I. 13751)

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Extremely high ash in flour.

Baking Evaluation - Unsatisfactory. Low absorption and short mixing time.

Wisc. 255 (C.I. 13588)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. High ash in the flour.

Baking Evaluation - Questionable. Low absorption and low loaf volume.

H678-1-5

Kernel Characteristics - Satisfactory.

Milling Performance - Very Satisfactory. Extremely low ash. Good yield.

Baking Evaluation - Questionable. Good mixing time and dough strength but low absorption.

H678-1-6

Kernel Characteristics - Satisfactory to Questionable. Low test weight.

Milling Performance - Very Satisfactory.

Baking Evaluation - Satisfactory.

H678-2-1

Kernel Characteristics - Satisfactory.

Milling Performance - Very Unsatisfactory. This sample gave low extraction and showed extremely soft milling characteristics.

Baking Evaluation - Unsatisfactory. Low absorption and weak dough.

H678-3-4

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Very soft milling characteristics.

Baking Evaluation - Unsatisfactory. Low absorption, short mixing time, weak dough characteristics and low loaf volume.

H679-1-5

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Very soft milling characteristics. High ash.

Baking Evaluation - Unsatisfactory. Low absorption, short mixing time and weak dough characteristics.

PRELIMINARY NURSERY SAMPLES

Sixty-five preliminary nursery samples were received from South Dakota and Wisconsin. Fifty-seven samples were received from Brookings, South Dakota - forty from the PWI nursery and seventeen from the PWII nursery. Eight samples were received from Madison, Wisconsin. Results of these samples are given in Tables 19, 20 and 21, respectively.

South Dakota Samples

Brookings B64 PWI Nursery

Four of the forty samples were named check varieties, Lee and Pembina. Of the thirty-six remaining samples, only ten were rated as better than unsatisfactory. The primary reasons for the unsatisfactory rating were short mixing time and weak doughs. Only those varieties which rated better than unsatisfactory are discussed. The results of these varieties are given in Table 19.

SD 6353

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Low extraction.

Baking Evaluation - Questionable. Low absorption and minimum loaf volume.

SD 6358

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Extremely low extraction and soft milling characteristics.

Baking Evaluation - Unsatisfactory to Questionable. Extremely low absorption and short mixing time and low loaf volume.

SD 6370

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Low extraction and soft milling characteristics.

Baking Evaluation - Questionable. Low absorption.

SD 6399

Kernel Characteristics - Satisfactory.

Milling Performance - Very Unsatisfactory. Low extraction, high ash and extremely soft milling characteristics.

Baking Evaluation - Unsatisfactory to Questionable. Minimum absorption and short mixing time.

SD 63100

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Unsatisfactory. Low extraction and a tendency to have soft milling characteristics.

Baking Evaluation - Unsatisfactory to Questionable. Minimum absorption and short mixing time. Also, tendency towards poor interior of the loaf.

SD 63108

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable. Minimum absorption and short mixing time.

SD 63110

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Low absorption, tendency to show soft milling characteristics.

Baking Evaluation - Questionable. Minimum absorption and mixing time.

SD 63111

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. Minimum extraction and high ash.

Baking Evaluation - Questionable. Minimum mixing time and absorption.

SD 63114

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Low absorption and soft milling characteristics.

Baking Evaluation - Questionable. Minimum absorption and short mixing time.

Obreg. 12832

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. Minimum extraction and tendency for high ash.

Baking Evaluation - Questionable to Unsatisfactory. Minimum absorption and mixing time.

Obreg. 12874

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Unsatisfactory. High ash.

Baking Evaluation - Questionable. Minimum absorption.

Brookings B64 PWII Nursery

Seventeen samples were received from this nursery. No name varieties were included in the series. Most of these varieties from this nursery show promise. Results are given in Table 20.

B59 PWI 10

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Unsatisfactory. Minimum extraction and tendency to show soft milling characteristics.

Baking Evaluation - Questionable. Low absorption and short mixing time.

B59 PWI 16

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Unsatisfactory. Low extraction, high ash and tendency to show soft milling characteristics.

Baking Evaluation - Questionable. Minimum absorption.

B59 PWI 27

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Low extraction, high ash and soft milling characteristics.

Baking Evaluation - Questionable to Satisfactory. Minimum absorption.

B59 PWI 44

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Low absorption, relatively high ash and a tendency to have soft milling characteristics.

Baking Evaluation - Questionable. Minimum mixing time.

B59 PWI 51

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Low extraction, high ash and tendency to have soft milling characteristics.

Baking Evaluation - Questionable to Satisfactory. Minimum absorption.

B59 PWI 73

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Low extraction, high ash, and tendency to have soft milling characteristics.

Baking Evaluation - Unsatisfactory to Questionable. Low absorption and minimum mixing time.

B60 PWI 21

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. Minimum baking absorption.

B60 PWI 54

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. Low extraction and tendency for high ash.

Baking Evaluation - Satisfactory.

B60 PWII CT 513

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Satisfactory. Minimum extraction.

Baking Evaluation - Questionable to Satisfactory. Minimum bake absorption.

<u>B60 PWII CT 514</u>

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory to Questionable. Low extraction and tendency to high ash.

Baking Evaluation - Questionable to Satisfactory. Low absorption.

<u>B60 PWII Obreg. 726</u>

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory to Questionable. Minimum extraction and high ash.

Baking Evaluation - Satisfactory.

<u>B61 PWI Obreg. 698</u>

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Low extraction and high ash.

Baking Evaluation - Satisfactory.

<u>B61 PWI Obreg. 769</u>

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Low extraction and high ash.

Baking Evaluation - Satisfactory.

<u>B61 PWII Obreg. 777</u>

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable to Satisfactory. Minimum absorption.

<u>B61 PWII N60-1096</u>

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. High ash.

Baking Evaluation - Satisfactory.

<u>B61 PWII N60-1099</u>

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. High ash and minimal extraction.

Baking Evaluation - Satisfactory.

B59 PWI 43

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Low extraction, tendency for high ash and soft milling characteristics.

Baking Evaluation - Unsatisfactory. Poor dough character, short mixing time and low loaf volume.

Wisconsin Preliminary Yield Samples

Eight samples were received from the Wisconsin Preliminary Nursery. One sample, Henry, was used as a check in this series. The results for the samples are given in Table 21.

H678-1-2-1

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. Minimum absorption.

H678-1-4-5

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

H678-1-5-4

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable to Satisfactory. Low absorption.

H678-1-6-4

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. Minimum baking absorption.

H678-1-6-5

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable to Satisfactory. Low baking absorption.

H678-3-3-2

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Low extraction and tendency to have soft milling characteristics.

Baking Evaluation - Unsatisfactory. Low absorption and short mixing time.

H679-1-5-1

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Low extraction and soft milling characteristics.

Baking Evaluation - Unsatisfactory. Low absorption, short mixing time and low loaf volume.

SAWFLY YIELD NURSERY SAMPLES

Forty-eight samples were received from three stations in Montana. Sixteen samples from each station, Cutbank, Dutton and Disney were received. Five of these samples of each station were name varieties, Chinook, Cypress, Rescue, Sawtana, and Thatcher. Eleven of the samples from each station were unnamed varieties. The results for these samples are given in Table 22.

B60-92 (C.I. 13591)

Kernel Characteristics - Questionable. Tendency for low 1000 kernel weight and average small kernel size distribution.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable. Showed a tendency to be low in absorption and short mixing time.

General Evaluation - Questionable to Satisfactory. This variety appears to be at least equal to present varieties in the sawfly area as to baking and milling characteristics. This variety has some promise.

60-7 (C.I. 13593)

Kernel Characteristics - Satisfactory to Questionable. Tendency for small kernel size distribution.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable.

General Evaluation - Questionable to Satisfactory. The variety appears to be about equal to the varieties in that area with a tendency to be low in loaf volume. This variety has some promise.

60-9 (C.I. 13594)

Kernel Characteristics - Questionable. Tendency for small kernel size distribution.

Milling Performance - Questionable. Low extraction.

Baking Evaluation - Unsatisfactory to Questionable. Short mixing time and a tendency for weak dough.

General Evaluation - Questionable. This variety is definitely below the other present sawfly varieties. This variety shows little promise.

60-54 (C.I. 13596)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Unsatisfactory. Short mixing time is the major fault with this sample.

General Evaluation - Questionable. This year's crop was unsatisfactory primarily due to short mixing time and low absorption. Last year the sample baked satisfactorily. This variety shows some promise.

5130-14 (C.I. 13598)

Kernel Characteristics - Questionable. Small kernel size distribution.

Milling Performance - Unsatisfactory. Low extraction.

Baking Evaluation - Satisfactory to Questionable.

General Evaluation - Questionable. The milling performance and kernel characteristics place this variety in an unsatisfactory category. Baking evaluation is satisfactory to questionable. This variety has little promise.

B61-69 (C.I. 13831)

Kernel Characteristics - Satisfactory to Questionable.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable to Satisfactory. Somewhat erratic results - basically low absorption.

B61-23 (C.I. 13832)

Kernel Characteristics - Satisfactory to Questionable. Small kernel size distribution.

Milling Performance - Questionable to Unsatisfactory. Low extraction and tendency to be soft in milling character.

Baking Evaluation - Unsatisfactory to Questionable. Short mixing time and poor interior of one sample.

61-107 (C.I. 13937)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Satisfactory. Sample shows tendency to mill soft and give low extraction.

Baking Evaluation - Unsatisfactory. Short mixing time, weak dough characteristics and low absorption.

Q254-28 (C.I. 13938)

Kernel Characteristics - Questionable. Low 1000 kernel weight and small kernel size distribution.

Milling Performance - Questionable. Low extraction.

Baking Evaluation - Undesirable to Questionable. Short mixing time and low absorption.

7532-4 (C.I. 13939)

Kernel Characteristics - Questionable to Satisfactory. Low 1000 kernel weight and small kernel size distribution.

Milling Performance - Satisfactory to Questionable.

Baking Evaluation - Unsatisfactory. Low absorption, short mixing time, and weak dough.

5422-45 (C.I. 13940)

Kernel Characteristics - Questionable to Unsatisfactory. Small kernel size distribution, and low 1000 kernel weight.

Milling Performance - Questionable. Low extraction.

Baking Evaluation - Questionable. Somewhat erratic results.

SOUTH DAKOTA YIELD NURSERY SAMPLES

Eighty-four samples were received from seven stations in South Dakota. Twelve samples were received from each station. Of these twelve samples, eight were named commercial varieties, Canthatch, Crim, Justin, Lee, Pembina, Rushmore, Selkirk, and Thatcher. The other four samples were B61-95, II-54-29, II-54-30, and II-53-525-1. The results of these varieties are given in Table 23.

B61-95 (C.I. 13586)

Kernel Characteristics - Satisfactory to Questionable. Small kernel size distribution.

Milling Performance - Questionable to Unsatisfactory. Low extraction and high ash.

Baking Evaluation - Questionable to Satisfactory. Main fault of this sample was tendency to have low absorption.

II-54-29 (C.I. 13654)

Kernel Characteristics - Questionable to Satisfactory. Small kernel size distribution.

Milling Performance - Satisfactory to Questionable. Occasional low extraction.

Baking Evaluation - Questionable. The results were erratic ranging from samples which were satisfactory to samples which were unsatisfactory. Main fault was low loaf volume and absorption.

II-54-30 (C.I. 13655)

Kernel Characteristics - Questionable to Satisfactory. Small kernel size distribution.

Milling Performance - Satisfactory to Questionable.

Baking Evaluation - Questionable to Satisfactory. Samples showed definite tendency towards minimum absorption.

II-53-525-1 (C.I. 13751)

Kernel Characteristics - Questionable to Satisfactory. Small kernel size distribution and low 1000 kernel weight.

Milling Performance - Questionable to Unsatisfactory. High ash and low extraction.

Baking Evaluation - Questionable to Satisfactory. Baking characteristics generally good with a tendency for minimum mixing time.

SPECIAL SERIES - SOUTH DAKOTA SAMPLES

A special series of one hundred and eight samples were received for evaluation of early generation varieties from the South Dakota 1963 crop. These data are included in this report since the samples were received too late for inclusion in the 1963 crop report and were processed after the 1963 crop report was written. The results for these varieties are given in Tables 24 and 25.

Of the one hundred and eight samples, only forty-four were rated questionable or better in their baking evaluation. Of the forty-four samples which rated questionable or better, eight were check samples. Many of the samples showed unsatisfactory milling performance because of low extraction and soft milling characteristics. Only eleven of the remaining thirty-six samples could be considered as potential new varieties showing promise, due to their poor milling characteristics.

TABLE 1

MINNESOTA FIELD PLOT SAMPLES

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Chsr. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Crookston, Minnesota																								
Crim	13465	60.0	32.3	68	31	1	76.4	1.87	11.1	S	68.9	.38	10.4	N	S	58.7	8	56.7	5	W SlD	100	90 T	845	U
Justin	13462	60.8	31.1	55	44	1	75.7	1.96	13.4	S	68.8	.40	12.1	N	S	61.3	5	59.3	3-3/4	W	100 C	80 T	815	U-Q
Pembina	13332	58.9	27.5	19	78	3	73.8	1.81	11.9	S-Q	66.7	.43	10.9	N	Q	61.9	9	59.9	7-1/2	W SlD	95 C	90 T	860	U-Q
Selkirk	13100	58.2	31.2	40	58	2	74.9	1.98	11.3	S	69.0	.41	10.0	N	S-Q	58.7	4	56.7	4-1/4	VW	95	80 T	830	U
Thatcher	10003	60.4	26.5	20	78	2	73.9	1.77	11.0	S	67.6	.43	10.8	N	Q	57.5	3	55.5	4	VW	95 C	80 T	810	U
II-52-238	13572	61.7	28.5	32	66	2	74.5	1.82	11.9	S	69.9	.41	10.6	N	S-Q	58.1	6	56.1	3-1/2	W	95	80 OT	875	U
II-53-525-1	13751	62.0	29.4	47	52	1	75.3	1.83	11.9	S	66.5	.42	9.8	N	Q	61.0	3	59.0	3-1/4	W	100	80 T	820	U
II-54-29	13654	62.2	31.4	42	56	2	75.0	1.72	10.8	S	69.8	.36	9.6	N	S	61.0	3	55.0	9	D	100 C	80 T	785	U
II-54-30	13655	62.5	29.8	30	68	2	74.4	1.75	10.9	S	70.0	.35	9.9	N	VS	58.7	4	56.7	4	W SlD	100 C	90 T	825	U
II-55-11	13773	62.3	37.7	74	26	0	76.7	1.84	12.5	S	67.3	.41	11.4	N	S-Q	59.3	6	57.3	4-3/4	W	110	90 T	885	U
II-55-12	13774	62.4	39.4	77	21	2	76.8	1.84	12.8	S	67.3	.41	11.4	N	S-Q	60.7	5	58.7	3-1/2	W	110	100	875	U
II-58-14	13824	60.6	36.0	78	21	1	76.9	1.88	12.2	S	62.5	.42	11.2	N-S	U	61.9	7	59.9	4	W SlD	100 W	90 O	775	U
II-58-57	13825	62.3	29.7	50	48	2	75.4	1.77	11.4	S	65.8	.40	10.4	N	S	59.3	6	57.3	4	D	110	95 SlO	835	U
II-59-9	13826	60.0	33.6	69	30	1	76.4	1.77	11.3	S	67.2	.38	10.1	N	S	57.5	9	55.5	5	W SlD	110	95	810	U
II-59-11	13827	62.2	33.1	52	46	2	75.5	1.81	12.4	S	64.6	.44	11.2	N-S	U	58.7	7	56.7	4-3/4	W SlD	110	95	785	U
Morris, Minnesota																								
Crim	13465	60.7	31.1	58	39	3	75.8	1.73	14.3	S	67.4	.39	13.3	N	S	66.6	6	64.6	4	S	100 W	80 IO	890	S-Q
Justin	13462	59.9	29.8	42	55	3	75.0	1.95	15.3	S	68.6	.36	14.5	N	S	67.0	6	65.0	4	S	95	90 O	935	S
Pembina	13332	59.7	27.7	25	72	3	74.2	1.80	14.0	S	67.5	.40	13.2	N	S	63.2	9	61.2	5-3/4	S	100	80 IO	910	Q
Selkirk	13100	58.4	31.9	41	56	3	74.9	2.04	14.4	S	70.2	.41	13.7	N	S-Q	63.8	5	61.8	3-1/4	M	95	95	840	S
Thatcher	10003	59.2	24.6	10	84	6	73.2	1.94	13.7	S	67.1	.43	13.1	N	Q	61.3	5	59.3	3-1/2	M-S	100	90 I	895	Q-U
II-52-238	13572	61.6	28.0	30	67	3	74.4	1.84	15.1	S	68.0	.38	14.2	N	S	64.2	3	62.2	2	M	100	90 I	885	U
II-53-525-1	13751	61.7	29.1	46	52	2	75.2	1.72	15.9	S	66.6	.36	14.5	N	S	65.7	3	63.7	1-3/4	M	105	90	910	U
II-54-29	13654	62.8	33.6	43	56	1	75.1	1.76	14.9	S	68.4	.33	13.9	N	VS	64.2	6	62.2	5	S	105 SlC	80 OI	875	S-Q
II-54-30	13655	63.2	32.4	34	64	2	74.6	1.72	14.6	S	69.7	.32	13.5	N	VS	61.0	3	59.0	2-1/4	M	105 C	80 O	950	Q-U
II-55-11	13773	62.5	37.9	64	33	3	76.1	1.75	15.4	S	67.0	.36	14.3	N	S	63.5	4	61.5	2-3/4	M	100 W	95	945	Q
II-55-12	13774	62.2	38.6	72	26	2	76.5	1.84	15.5	S	66.8	.39	14.5	N	S	62.5	4	60.5	2-1/2	M	95 DW	95	905	Q-U
II-58-14	13824	60.0	35.7	74	24	2	76.6	1.82	15.6	S	60.2	.43	14.5	S	U	65.7	5	63.9	3	S	105	95 SlO	910	S
II-58-57	13825	61.1	27.0	26	70	4	74.1	1.71	13.9	S	67.1	.39	13.0	N	S	64.7	5	62.7	3-1/2	W	105	95 SlO	980	Q
II-59-9	13826	60.7	36.5	66	31	3	76.2	1.67	14.9	S	67.1	.40	13.7	N-S	S	66.3	5	64.3	3-1/4	M-S	95 DW	95	910	S-Q
II-59-11	13827	61.7	32.1	42	55	3	75.0	1.72	15.3	S	63.5	.49	14.1	N-S	U	66.3	5	64.3	2-3/4	M-S	105	90	955	Q-S
Rosemount, Minnesota																								
Crim	13465	58.3	31.1	49	48	3	75.3	1.87	16.5	S	63.3	.42	15.3	N-S	U	69.4	6	67.4	4-1/4	S	110	80 I	1025	S-Q
Justin	13462	58.6	29.4	34	61	5	74.5	2.05	17.7	S	65.1	.39	16.5	N	S	67.9	6	65.9	3-1/4	S	100	80 I	1025	S-Q
Pembina	13332	57.3	24.7	12	82	6	73.3	1.90	16.7	Q	65.3	.42	16.0	N	Q	66.3	7	64.3	5	S	100	80 IO	1025	S-Q
Selkirk	13100	55.6	28.4	17	78	5	73.6	1.97	16.6	Q	67.8	.42	15.9	N	Q	66.0	4	64.0	2-3/4	M	95 SlC	90 SlI	1005	Q
Thatcher	10003	58.1	24.2	9	84	7	73.1	1.97	15.8	Q	65.2	.51	15.4	N	U	65.7	4	63.7	3	S	100 SlC	90	1025	S
II-52-238	13572	59.9	26.5	20	69	11	73.5	2.04	18.0	S	66.3	.48	17.9	N	U	66.6	4	64.6	2-1/4	M	100 SlC	80 OI	1025	Q-U
II-53-525-1	13751	60.2	26.9	32	63	5	74.4	1.98	16.6	S	63.9	.58	16.3	N-S	U	66.3	4	64.3	2-1/4	M	100 SlC	80 OI	1025	Q-U
II-54-29	13654	61.4	31.4	33	62	5	74.4	1.84	16.4	S	68.1	.46	15.6	N	U	65.0	6	63.0	4	S	90 VC	60 C	725	U
II-54-30	13655	61.8	29.4	19	75	6	73.7	1.87	16.3	S	68.9	.49	15.4	N	U	64.7	5	62.7	3	M-S	100 VC	70 OI	940	U
II-55-11	13773	61.5	35.2	49	46	5	75.2	1.95	16.8	S	65.1	.43	15.8	N-S	Q	64.7	5	62.7	3	M-S	110	90 O	1025	S
II-55-12	13774	61.4	33.8	52	43	5	75.4	2.03	17.1	S	65.5	.42	16.0	N-S	Q	63.8	5	61.8	3-1/4	M	105	100	1025	S
II-58-14	13824	58.5	31.3	58	39	3	75.8	2.02	16.9	S	58.8	.50	15.7	S	U	67.0	5	65.0	2-3/4	M	110	70 O	1025	U
II-58-57	13825	58.5	25.3	15	80	5	73.5	1.94	17.0	S-Q	64.3	.45	16.1	N-S	U	68.8	6	66.8	3	M	100	90 I	1025	S
II-59-9	13826	58.3	31.2	43	51	6	74.9	1.83	16.5	S	64.1	.47	15.6	S	U	68.8	6	66.8	3-1/4	M-S	110	90 I	1025	S
II-59-11	13827	60.6	30.3	40	56	4	74.8	1.84	17.0	S	60.6	.53	16.0	S	U	69.1	6	67.1	3	W	110	80 O	955	U-Q
Waseca, Minnesota																								
Crim	13465	57.4	32.2	56	40	4	75.6	1.80	13.6	S	69.8	.39	12.5	N	S	62.8	6	60.8	4-1/4	S	105	95	865	Q
Justin	13462	58.0	30.2	39	58	3	74.8	2.03	15.5	S	69.5	.42	14.4	N	Q	63.5	6	61.5	3-3/4	S	105 C	95	895	S-Q
Pembina	13332	57.0	26.8	16	80	4	73.6	1.82	13.9	S-Q	68.3	.43	13.3	N	Q	60.0	11	58.0	6	S	105	95 O	940	U-Q
Selkirk	13100	54.9	29.7	27	70	3	74.2	1.89	13.8	Q	70.8	.43	13.0	N	Q	61.3	4	59.3	3-1/4	W	105 C	95 SlO	870	U-Q
Thatcher	10003	56.6	24.0	9	86	5	73.2	1.95	13.8	Q	69.8	.42	11.2	N	Q	59.0	4	57.0	2-3/4	W	105 C	95 SlO	875	U
II-52-238	13572	59.2	27.0	31	66	3	74.4	1.91	15.2	S	70.7	.40	14.3	N	S	62.5	4	60.5	2-1/2	M-S	105 C	95 SlO	915	Q
II-53-525-1	13751	60.2	31.2	51	46	3	75.4	1.87	15.5	S	67.9	.40	14.4	N	S	64.2	4	62.2	2-1/2	M-S	105 SlC	90	965	Q
II-54-29	13654	60.9	34.6	53	44	3	75.5	1.79	14.6	S	71.7	.33	13.5	N	VS	61.9	8	59.9	5	M-S	105 C	90 O	880	Q
II-54-30	13655	61.8	33.4	48	50	2	75.3	1.74	13.9	S	72.0	.33	13.0	N	VS	60.3	4	58.3	2-3/4	M	110 C	90 IO	880	Q-U
II-55-11	13773	60.3	38.0	63	32	5	75.9	1.88	15.7	S	67.6	.38	14.3	N	S	60.3	5	58.3	2-3/4	M	120 W	95	970	Q-U
II-55-12	13774	60.7	39.4	70	28	2	76.4	1.91	15.5	S	67.9	.39	14.3	N	S	61.3	4	59.3	2-1/4	M	105 SlC	95	990	Q-U
II-58-14	13824	58.1	36.8	77	21	2	76.8	1.92	15.5	S	61.6	.42	14.3	N-S	Q	64.2	5	62.2	3-3/4	M-S	110	95	890	S
II-58-57	13825	58.0	25.6	28	66	6	74.1	1.85	13.6	S	67.9	.36	12.8	N	S	64.2	6	62.2	3-1/4	M	115	90 I	935	S
II-59-9	13826	58.8	38.0	66	30	4	76.1	1.74	14.2	S	67.4	.38	13.1	N	S	65.0	6	63.0	3-1/2	M-S	105	85 I	885	S
II-59-11	13827	60.5	34.6	62	34	4	75.9	1.69	15.1	S	64.7	.56	14.0	S	U	65.3	5	63.3	3-1/4	M-S	110	85 I	900	S

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ VS - Very Satisfactory, S - Satisfactory, Q - Questionable, U - Unsatisfactory.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead.
7/ C - Creamy, C - Cray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

TABLE 2

NORTH DAKOTA FIELD PLOT SAMPLES

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Dickinson, North Dakota																								
Canthatch	13345	60.0	26.7	19	78	3	73.8	1.71	16.1	S	64.1	.45	15.4	N-S	U	64.4	3	62.4	2-1/4	M	100 BC	90 OI	1025	Q
Chinook	13220	60.5	26.7	15	80	5	73.5	1.69	15.9	S-Q	66.1	.38	15.1	N	S	64.2	3	62.2	2	M-S	100	95	980	U
Conley	13157	58.1	27.2	14	81	5	73.5	1.81	15.7	S-Q	66.9	.39	15.0	N	S	65.0	4	63.0	2-3/4	M	100	95	940	S-Q
Crim	13465	58.0	26.6	25	73	2	74.2	1.78	15.8	S	65.1	.41	15.1	N-S	Q	66.3	5	64.3	3	S	110	95	1025	S
Forx		60.5	28.2	31	67	2	74.5	1.64	16.2	S	64.6	.39	15.3	N	S	61.9	2	59.9	1-1/2	M	95	95	915	U
Justin	13462	57.9	27.1	28	69	3	74.3	1.89	17.1	S	66.1	.41	16.2	N	S	65.7	4	63.7	2-1/2	M	100	95	935	S-Q
Lee	12488	59.4	26.0	19	78	3	73.8	1.79	16.0	S	64.5	.42	15.5	N-S	Q	62.8	3	60.8	2-1/4	W	110	95	990	U-Q
Marquis	3641	59.1	25.1	15	80	5	73.5	1.71	14.9	Q	65.0	.38	14.2	N	S	60.0	2	58.0	2	M	110	95	960	U
Nordman		57.9	28.7	26	71	3	74.2	1.75	15.5	S	67.2	.39	15.1	N	S	63.5	3	61.5	2	W	100	100	890	U
Pembina	13332	58.9	24.9	11	85	4	73.4	1.76	16.5	Q	64.7	.41	15.3	N	Q	63.8	4	61.8	2-3/4	M	100	95	1000	Q
Plainsman		57.9	28.6	28	69	3	74.3	1.77	15.8	S	66.9	.39	15.0	N	S	63.2	3	61.2	2-1/2	W	100	95	880	U
Rushmore	12273	59.8	26.8	21	76	3	73.9	1.80	16.7	S	66.1	.42	15.7	N	Q	62.5	3	60.5	3	M	100	95	970	Q
Selkirk	13100	57.7	24.2	11	85	4	73.4	1.79	16.8	Q	65.0	.43	16.0	N	Q	62.8	3	60.8	3-1/2	M	95	95	1025	S-Q
Thatcher	10003	59.6	24.9	16	80	4	73.6	1.82	16.1	S-Q	63.8	.42	15.2	N-S	Q	61.3	2	59.3	1-3/4	W	95	100	1005	U
II-53-525-1	13751	59.0	23.3	8	87	5	73.2	1.71	16.2	Q	65.4	.39	15.3	N	S	66.6	4	64.6	2	M	100 SlC	95	1025	Q
II-54-29	13654	60.9	26.5	11	83	6	73.3	1.67	15.6	S-Q	67.9	.34	14.7	N	VS	65.0	5	63.0	4-3/4	S	95 C	80 OI	950	Q
II-54-30	13655	61.6	25.3	7	87	6	73.1	1.73	14.4	Q-S	67.1	.35	13.6	N	VS	61.9	2	59.9	2	M	90 VC	90	970	U
60-54	13596	58.4	27.2	12	81	7	73.3	1.80	15.8	S	66.9	.40	15.1	N	S	66.3	4	64.3	2-1/2	M	110 BC	95	1000	Q
RL 2938	13463	60.0	27.9	36	62	2	74.7	1.69	14.9	S	64.9	.37	14.0	N-S	S	66.6	5	64.6	3	M-S	110	90	975	S
Williston, North Dakota																								
Canthatch	13345	61.0	23.7	10	84	6	73.2	1.77	14.8	Q	66.0	.38	13.9	N	S	62.5	4	60.5	3	M	95	90	930	Q
Chinook	13220	62.1	24.8	11	84	5	73.2	1.70	14.0	Q	67.5	.40	13.1	N	S	61.9	3	59.9	2-1/4	M	100	100	885	U
Crim	13465	59.8	26.5	20	78	2	73.9	1.82	15.1	S	67.8	.41	14.4	N	Q-S	66.6	6	64.6	5-1/4	S	110	100	920	S
Forx		62.5	29.2	32	65	3	74.5	1.62	13.5	S	66.4	.43	12.9	N	U	59.7	2	57.7	1-3/4	W	100 C	80 O	890	U
Justin	13462	61.6	27.9	19	79	2	73.9	1.76	13.9	S	69.4	.38	13.1	N	S	61.9	4	59.9	3	M-S	110	95	880	Q
Lee	12488	60.9	27.9	18	78	4	73.7	1.72	15.6	S	66.8	.48	14.5	N	U	66.3	4	64.3	2-3/4	M	120	100	975	S-Q
Nordman		60.2	29.6	19	77	4	73.8	1.77	12.1	S	69.7	.39	11.7	N	S	61.0	3	59.0	3	M	110	95	835	Q-U
Pembina	13332	59.8	23.9	9	84	7	73.1	1.78	14.5	Q-S	67.3	.45	13.9	N	U	64.4	4	62.4	3-3/4	M-S	100	90 I	975	S
Plainsman		59.9	27.2	18	78	4	73.7	1.66	12.8	S	69.8	.38	12.3	N	S	62.5	4	60.5	3-1/2	W	100	100	875	U
Rescue	12435	59.9	22.4	5	85	10	72.8	1.80	15.1	Q	67.8	.38	14.2	N	S	64.2	4	62.2	3	S	90 C	95	970	S
Sawtana	13304	61.5	24.8	5	90	5	73.0	1.84	13.9	Q	68.2	.39	13.2	N	S	62.5	3	60.5	2-1/2	M	95 C	95	920	Q-U
Selkirk	13100	59.1	28.2	11	84	5	73.3	1.66	14.0	Q-S	69.1	.39	13.4	N	S	61.9	3	59.9	3	M	100	100	920	Q
Thatcher	10003	59.7	23.3	7	85	8	73.0	1.80	16.4	Q	65.8	.45	15.4	N	U	62.5	3	60.5	1-3/4	VW	110 BC	95	980	U
II-53-525-1	13751	61.4	24.6	6	87	7	73.0	1.75	13.9	Q	67.1	.42	13.4	N	Q	60.3	3	58.3	2-1/2	M-S	110 BC	95	935	U
II-54-29	13654	63.4	28.2	13	83	4	73.5	1.63	12.1	S-Q	69.8	.33	11.5	N	VS	61.3	7	59.3	7	S	100 VC	80 O	840	U
II-54-30	13655	63.5	25.5	6	88	6	73.0	1.58	12.6	Q-S	69.7	.33	11.7	N	VS	58.1	4	56.1	2-1/2	M-S	100 BC	100	945	U
60-54	13596	60.3	27.2	6	88	6	73.0	1.76	14.5	Q	69.3	.39	13.7	N	S	63.5	4	61.5	3	M-S	110 BC	100	985	S

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ VS - Very Satisfactory, S - Satisfactory, Q - Questionable, U - Unsatisfactory.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

TABLE 3

FIELD PLOT NURSERY SAMPLES

Madison, Wisconsin

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
				Lg.	Med.	Sm.																		
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Crim	13465	59.6	34.6	63	35	2	76.1	1.84	13.5	S	67.4	.41	12.8	N	S-Q	64.2	6	62.2	4-3/4	S	115	95	860	S
Henry	12265	60.1	36.1	58	41	1	75.9	1.78	12.8	S	71.4	.35	11.7	N	VS	60.7	4	59.7	2-1/2	M	105 C	95	840	U
Justin	13462	60.1	30.8	40	58	2	74.9	1.99	15.2	S	68.6	.39	14.3	N	S	61.6	6	59.6	3-1/2	M-S	100	95	835	Q
Lathrop	13457	60.3	35.6	48	50	2	75.3	1.79	13.0	S	71.2	.36	12.0	N	S	61.3	4	59.3	3	M	100 C	95	845	Q
Lee	12488	59.4	33.7	52	46	2	75.5	1.83	14.3	S	64.8	.44	13.4	N-S	U	64.2	4	62.2	3-1/2	M	120	95	875	S
Selkirk	13100	56.8	32.8	36	62	2	74.7	1.92	14.1	S	69.1	.41	13.2	N	S	63.2	4	61.2	3	M	105	95	860	S-Q
Thatcher	10003	59.5	26.1	17	79	4	73.7	1.84	14.2	S	67.0	.45	12.9	N	U	61.3	5	59.3	3	M-S	100	95	865	Q-U
Wisc. 255	13588	60.8	36.0	51	47	2	75.5	1.87	14.8	S	68.0	.42	13.4	N	Q	63.5	5	61.5	3-1/2	M-S	110	95	845	S
6-12		60.6	33.4	41	58	1	75.0	1.83	14.5	S	68.5	.42	13.5	N	Q	64.2	6	62.2	4-1/2	S	110 S1C	95	885	S
H515B 7-2-12-5		59.4	29.8	36	62	2	74.7	1.77	13.5	S	69,9	.37	11.9	N	S	60.3	7	59.3	5-1/2	S	105	100	885	Q

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ VS - Very Satisfactory, S - Satisfactory, Q - Questionable, U - Unsatisfactory.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

TABLE 4

FIELD PLOT STATE AVERAGES

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Chsr. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
				Lg.	Med.	Sm.																		
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Minnesots																								
Crim	13465	59.1	31.7	58	39	3	75.8	1.82	13.9	S	67.4	.40	12.9	N	S	64.4	7	62.4	4-1/4	S	104	86	906	S-Q
Justin	13462	59.3	30.1	42	55	3	75.0	2.00	15.5	S	68.0	.39	14.4	N	S	64.9	6	62.9	3-3/4	S	100	86	842	S-Q
Pembina	13332	58.2	26.7	18	78	4	73.7	1.83	14.1	S-Q	67.0	.42	13.4	N	Q	62.9	9	60.9	6	S	100	86	934	Q
Selkirk	13100	56.8	30.3	31	66	3	74.4	1.97	14.0	S-Q	69.5	.42	13.2	N	Q-S	62.5	4	60.5	3-1/4	M-W	98	90	886	Q-U
Thstcher	10003	58.6	24.8	12	83	5	73.4	1.91	13.6	S-Q	67.4	.45	12.6	N	Q-U	60.9	4	58.9	3-1/4	W	100	89	901	Q-U
II-52-238	13572	60.6	27.5	28	67	5	74.2	1.90	15.1	S	68.7	.42	14.3	N	S-Q	62.9	4	60.9	2-1/2	M	100	86	925	U-Q
II-53-525-1	13751	61.0	29.2	44	53	3	75.1	1.85	15.0	S	66.2	.44	13.8	N-S	Q	64.3	4	62.3	2-1/2	M	103	85	930	Q-U
II-54-29	13654	61.8	32.8	43	54	3	75.0	1.78	14.2	S	69.5	.37	13.2	N	S	63.0	6	61.0	5-3/4	S-M	100	78	816	Q-U
II-54-30	13655	62.3	31.3	33	64	3	74.5	1.77	13.9	S	70.2	.37	13.0	N	S	61.2	4	59.2	3	M	104	90	899	U-Q
II-55-11	13773	61.7	37.2	62	35	3	76.0	1.86	15.1	S	66.8	.40	14.0	N	S	62.0	5	60.0	3-1/4	M	110	93	956	Q
II-55-12	13774	61.7	37.8	68	29	3	76.3	1.91	15.2	S	66.9	.40	14.1	N	S	62.1	5	60.1	2-3/4	M-W	104	98	949	Q-U
II-58-14	13824	59.3	35.0	72	26	2	76.5	1.90	15.1	S	60.8	.44	13.9	S-N	U	64.7	6	62.7	3-1/4	M	106	88	900	Q
II-58-57	13825	60.0	26.9	30	66	4	74.3	1.82	14.0	S	66.3	.40	13.1	N	S	64.3	6	62.3	3-1/2	M-W	108	93	944	Q
II-59-9	13826	59.5	34.8	61	36	3	75.9	1.75	14.2	S	66.5	.41	13.1	N-S	S-Q	64.4	7	62.4	3-3/4	M-S	105	91	908	S
II-59-11	13827	61.3	32.5	49	48	3	75.3	1.77	15.0	S	63.4	.51	13.8	S-N	U	64.9	6	62.9	3-1/2	M-W	109	88	899	Q
1964 Average 9/		58.4	30.7	44	53	3	75.1	1.93	14.5		68.3	.40	13.5			63.9	6	61.9	3-3/4		101	87	878	
1963 Average 9/		58.0	29.1	36	58	6	74.6	1.83	15.9		67.0	.38	14.9			65.6	6	64.1	4		102	94	857	
North Dakota																								
Canthstch	13345	60.5	25.2	15	81	4	73.5	1.74	15.5	S-Q	65.1	.42	14.7	N	Q	63.5	4	61.5	2-1/2	M	98	90	978	Q
Chinook	13220	61.3	25.8	13	82	5	73.4	1.70	15.0	Q-S	66.8	.39	14.1	N	S	63.1	3	61.1	2	M	100	98	933	U
Conley	13157	58.1	27.2	14	81	5	73.5	1.81	15.7	S-Q	66.9	.39	15.0	N	S	65.0	4	63.0	2-3/4	M	100	95	940	S-Q
Crim	13465	58.9	26.6	23	75	2	74.1	1.80	15.5	S	66.5	.41	14.8	N	Q-S	66.5	6	64.5	4	S	110	98	973	S
Forx		61.5	28.7	32	66	2	74.5	1.63	14.9	S	65.5	.41	14.1	N	Q	60.8	2	58.8	1-1/2	W-M	98	88	903	U
Justin	13462	59.8	27.5	24	74	2	74.1	1.83	15.5	S	67.8	.40	14.7	N	S	63.8	4	61.8	2-3/4	M-S	105	95	908	Q-S
Lee	12488	60.2	27.0	19	78	3	73.8	1.76	15.8	S	65.7	.45	15.0	N-S	U-Q	64.6	4	62.6	2-1/2	M-W	115	98	983	Q
Marquis	3641	59.1	25.1	15	80	5	73.5	1.71	14.9	Q	65.0	.38	14.2	N	S	60.0	2	58.0	2	M	110	95	960	U
Nordman		59.1	29.2	23	74	3	74.0	1.76	13.8	S	68.5	.39	13.4	N	S	62.3	3	60.3	2-1/2	W-M	105	98	863	U-Q
Pembina	13332	59.4	24.4	10	85	5	73.3	1.77	15.5	Q-S	66.0	.43	14.6	N	Q-U	64.1	4	62.1	3-1/4	M	100	93	988	S-Q
Plainsman		58.9	27.9	23	74	3	74.0	1.72	14.3	S	68.4	.39	13.7	N	S	62.9	4	60.9	3	W	100	98	878	U
Rescue	12435	59.9	22.4	5	85	10	72.8	1.80	15.1	Q	67.8	.38	14.2	N	S	64.2	4	62.2	3	S	90	95	970	S
Rushmore	12273	59.8	26.8	21	76	3	73.9	1.80	16.7	S	66.1	.42	15.7	N	Q	62.5	3	60.5	3	M	100	95	970	Q
Sswtana	13304	61.5	24.8	5	90	5	73.0	1.84	13.9	Q	68.2	.39	13.2	N	S	62.5	3	60.5	2-1/2	M	95	95	920	Q-U
Selkirk	13100	58.4	26.2	11	85	4	73.4	1.73	15.4	Q-S	67.1	.41	14.7	N	S-Q	62.4	3	60.4	3-1/4	M	98	98	973	Q-S
Thatcher	10003	59.7	24.1	12	82	6	73.3	1.8I	16.3	Q-S	64.8	.44	15.3	N-S	U-Q	61.9	3	59.9	1-3/4	W	103	98	993	U
II-53-525-I	13751	60.2	24.0	7	87	6	73.1	1.73	15.1	Q	66.3	.41	14.4	N	S-Q	63.5	4	61.3	2	M	105	95	980	U-Q
II-54-29	13654	62.1	27.4	12	83	5	73.5	1.65	13.9	S-Q	68.9	.34	13.1	N	VS	63.2	6	61.2	5-3/4	S	98	80	895	Q
II-54-30	13655	62.6	25.4	7	87	6	73.1	1.66	13.5	Q	68.4	.34	12.7	N	VS	60.0	3	58.0	2-1/4	M	100	95	958	U
B60-54	13596	59.4	27.2	9	85	6	73.2	1.78	15.2	Q-S	68.1	.40	14.4	N	S	64.9	4	62.9	2-3/4	M	110	98	993	S-Q
RL 2938	13463	60.0	27.9	36	62	2	74.7	1.69	14.9	S	64.9	.37	14.0	N-S	S	66.6	5	64.6	3	M-S	110	90	975	S
1964 Average 9/		59.0	26.8	19	78	3	73.9	1.79	15.5		67.1	.41	14.7			64.2	4	62.2	3-1/4		104	97	951	
1963 Average 9/		No samples in 1963																						
Wisconsin																								
Crim	13465	59.6	34.6	63	35	2	76.1	1.84	13.5	S	67.4	.41	12.8	N	S-Q	64.2	6	62.2	4-3/4	S	115	95	860	S
Henry	12265	60.1	36.1	58	41	1	75.9	1.78	12.8	S	71.4	.35	11.7	N	VS	60.7	4	59.7	2-1/2	M	105	95	840	U
Justin	13462	60.1	30.8	40	58	2	74.9	1.99	15.2	S	68.6	.39	14.3	N	S	61.6	6	59.6	3-1/2	M-S	100	95	835	Q
Latbrop	13457	60.3	35.6	48	50	2	75.3	1.79	13.0	S	71.2	.36	12.0	N	S	61.3	4	59.3	3	M	100	95	845	Q
Lee	12488	59.4	33.7	52	46	2	75.5	1.83	14.3	S	64.8	.44	13.4	N-S	U	64.2	4	62.2	3-1/2	M	120	95	875	S
Selkirk	13100	56.8	32.8	36	62	2	74.7	1.92	14.1	S	69.1	.41	13.2	N	S	63.2	4	61.2	3	M	105	95	860	S-Q
Thatcher	10003	59.5	26.1	17	79	4	73.7	1.84	14.2	S	67.0	.45	12.9	N	U	61.3	5	59.3	3	M-S	100	95	865	Q-U
Wisc. 255	13588	60.8	36.0	51	47	2	75.5	1.87	14.8	S	68.0	.42	13.4	N	Q	63.5	5	61.5	3-1/2	M-S	110	95	845	S
6-12		60.6	33.4	41	58	1	75.0	1.83	14.5	S	68.5	.42	13.5	N	Q	64.2	6	62.2	4-1/2	S	110	95	885	S
H515B 7-2-12-5		59.4	29.8	36	62	2	74.7	1.77	13.5	S	69.9	.37	11.9	N	S	60.3	7	59.3	5-1/2	S	105	100	885	Q
1964 Average 9/		58.8	32.7	46	52	2	75.2	1.92	14.3		68.4	.40	13.4			63.0	5	61.0	3-3/4		107	95	852	
1963 Aversge 9/		59.4	34.5	68	30	2	76.3	1.86	11.5		67.6	.38	10.5			59.5	6	59.2	5		125	80	676	
Crop Aversge 1964 9/		58.7	30.1	36	61	3	74.7	1.88	14.8		67.9	.40	13.9			63.7	5	61.7	3-1/2		104	93	894	
Crop Average 1963 9/		58.7	31.8	52	44	4	75.5	1.85	13.7		67.3	.38	12.7			62.6	6	61.7	4-1/4		114	87	767	

1/,2/,3/,4/,5/,6/,7/ and 8/ sre the same as found on the tables of individual samples.
9/ Averages are obtained using the results for the varieties of Crim, Justin and Selkirk.

TABLE 5

UNIFORM REGIONAL NURSERY SAMPLES

Morris, Minnesota

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Crim	13465	61.0	33.1	44	52	4	75.0	1.74	14.1	S	61.7	.46	13.6	N	S-Q	64.4	6	64.4	5	M-S	130 W	95	172	S
Justin	13462	60.0	29.2	32	63	5	74.4	1.87	16.0	S	61.9	.43	15.1	N	S	63.2	5	63.2	3-3/4	M-S	110	70 O	174	Q
Lee	12488	60.0	28.3	17	77	6	73.6	1.75	13.5	S-Q	60.2	.45	13.1	N	Q-S	61.0	6	61.0	4-3/4	M-S	105	95	170	Q
Marquis	3641	48.5	16.5	1	59	40	71.1	2.15	12.2	U	48.1	.64	11.8	N-S	U	57.2	2	57.2	3-1/4	D	100 VC	90 C	156	U
Pembina	13332	60.0	29.4	24	70	6	73.9	1.84	14.7	S-Q	62.1	.49	14.1	N	S	61.0	4	61.0	3-3/4	M-S	105	95	182	Q
Selkirk	13100	58.5	29.8	23	70	7	73.8	1.81	14.5	S-Q	62.4	.50	14.3	N	S-Q	61.3	3	61.3	3-1/4	M-S	105	95	169	Q
Thatcher	10003	59.5	24.6	7	83	10	72.9	1.93	13.5	Q	60.9	.51	13.3	N	Q	59.0	4	59.0	3-1/2	M-S	115	90 O	179	Q
RL 4159	13775	61.0	28.9	29	67	4	74.3	1.87	15.5	S	60.2	.46	15.0	N	Q-S	60.7	3	60.7	2-1/2	M	95	90 OI	180	Q
ND 229-1	13589	60.5	29.2	41	53	6	74.8	1.75	14.4	S	60.9	.46	13.6	N	Q	61.6	6	61.6	5-1/2	M-S	105 W	90	176	Q-S
ND 264	13569	61.0	32.9	29	65	6	74.2	1.88	15.3	S	59.4	.48	14.2	N	Q	64.4	5	64.4	4-1/4	M-S	115 W	95	189	S
ND 345	13653	63.0	33.9	49	48	3	75.3	1.75	14.6	S	60.9	.42	13.8	N	Q	63.2	6	63.2	5-1/4	M-S	120 W	80 O	188	Q
ND 363	13828	61.5	35.5	55	42	3	75.6	1.97	15.3	S	59.4	.51	14.6	N	Q	63.2	3	63.2	2-3/4	M	120	90	185	S-Q
ND 364	13829	60.5	29.0	27	68	5	74.1	1.82	15.2	S	61.7	.45	14.5	N	S	62.8	4	62.8	3-1/4	S	110 SlC	90	176	S
ND 373	13830	62.0	32.6	45	52	3	75.1	1.89	15.3	S	57.5	.46	14.6	N	U-Q	61.9	2	61.9	2	M	110 SlC	90	174	U
ND 404	13778	63.0	31.2	41	56	3	74.9	1.82	15.0	S	58.6	.47	13.8	N	Q	61.6	5	61.6	4-3/4	M-S	120 VW	90	180	S-Q
ND 405	13779	60.5	40.2	60	37	3	75.9	1.87	15.8	S	57.5	.45	15.3	N	Q-U	62.5	4	62.5	3-1/4	M-S	120 W	90	180	S
ND 406	13780	64.5	37.9	68	30	2	76.3	1.77	15.0	S	54.1	.44	13.5	S	U	61.3	3	61.3	2-3/4	M	120 W	80 O	155	Q-U
II-53-525-1	13751	63.5	30.9	36	61	3	74.7	1.75	15.6	S	59.0	.55	15.0	N	U	61.3	2	61.3	2	M	120 W	90	171	U
II-54-29	13654	63.5	35.1	38	60	2	74.8	1.83	15.0	S	60.4	.46	14.3	N	Q	61.6	6	61.6	4-3/4	S	115	80 O	162	Q
II-54-30	13655	64.0	32.4	25	71	4	74.1	1.73	15.0	S	61.7	.43	14.2	N	Q-S	60.3	3	60.3	2-1/4	M	105 C	80 O	162	U
II-55-11	13773	63.5	38.2	58	38	4	75.7	1.82	15.4	S	59.4	.45	14.6	N	Q	61.9	3	61.9	2-3/4	M	120 W	90	191	Q
II-55-12	13774	63.5	39.8	62	35	3	76.0	1.83	15.4	S	59.0	.47	14.8	N	Q	63.5	3	63.5	2-1/4	M	110 W	90	190	Q
II-58-14	13824	61.0	36.6	66	33	1	76.3	1.81	15.5	S	54.1	.53	14.5	N-S	U	65.7	5	65.7	3-3/4	M-S	120 W	90	178	S
II-58-57	13825	61.5	25.3	13	79	8	73.3	1.81	14.2	Q-S	57.6	.50	13.5	N	Q	64.2	6	64.2	4-1/2	M-S	110 W	95	187	S
II-59-9	13826	61.0	35.7	59	38	3	75.8	1.67	15.2	S	58.6	.48	14.1	N	Q	64.4	5	64.4	4	S	115 W	80 O	180	Q
II-59-11	13827	62.0	31.2	38	59	3	74.8	1.71	15.6	S	56.8	.56	14.7	N	U	64.2	4	64.2	3	M	110 W	80 O	184	Q
B60-82	13823	63.0	32.7	28	67	5	74.2	1.71	14.1	S	58.2	.47	13.5	N	Q	61.9	4	61.9	3-1/4	M-S	110 W	95	178	Q-S
B61-95	13586	63.0	33.8	33	63	4	74.5	1.71	14.3	S	57.9	.47	13.5	N	Q	62.3	4	62.3	3-1/4	M-S	110 W	80 O	184	Q
60-54	13596	62.5	39.7	52	45	3	75.5	1.68	14.8	S	60.9	.44	14.3	N	Q	61.9	4	61.9	2-3/4	M	110 W	80 O	178	Q
6-16-12	13588	62.0	35.6	46	51	3	75.2	1.88	15.8	S	59.7	.55	15.0	N	U	63.8	4	63.8	3-1/2	M-S	110 W	80 O	195	Q

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

TABLE 6

UNIFORM REGIONAL NURSERY SAMPLES

St. Paul, Minnesota

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
				Lg.	Med.	Sm.																		
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Crim	13465	57.5	27.6	14	79	7	73.4	1.97	18.6	Q-S	56.0	.58	18.0	N	U	68.5	6	68.5	5-1/4	S	110 W	90	208	S
Justin	13462	56.5	26.0	9	81	10	73.0	2.08	18.9	Q	59.4	.54	18.5	N	Q-U	69.7	7	69.7	4-3/4	S	105	70 0	201	Q-U
Lee	12488	58.0	28.7	15	79	6	73.5	1.88	18.4	S-Q	55.6	.62	18.0	N-S	U	66.3	4	66.3	2-3/4	M	110 W	80 0	208	Q
Marquis	3641	58.0	24.3	6	83	11	72.8	2.11	17.6	Q	57.1	.59	17.0	N	U	66.0	5	66.0	4	S	105	70 0	200	Q-U
Pembina	13332	55.5	26.4	6	84	10	72.8	1.92	17.9	Q-U	57.5	.57	17.9	N	U	64.7	4	64.7	3	M-S	100	90	180	S
Selkirk	13100	55.0	27.2	8	83	9	73.0	1.88	18.0	Q	58.6	.52	16.5	N	Q	64.7	4	64.7	2-1/2	M	100	90 T	165	Q
Thatcher	10003	57.0	23.9	7	83	10	72.9	1.98	18.7	Q	57.5	.58	18.5	N	U	63.2	3	63.2	2	M	110	100	183	Q
RL 4159	13775	57.0	23.6	6	83	11	72.8	1.98	18.8	Q	58.6	.59	17.1	N	U	64.2	3	64.2	2-1/2	M	105	80 0	192	Q
ND 229-1	13589	57.0	26.6	15	72	13	73.1	1.91	17.8	Q-S	57.9	.56	17.1	N	Q-U	66.0	6	66.0	5-1/4	M-S	105	80 0	200	Q
ND 264	13569	58.0	28.9	10	80	10	73.0	2.09	19.1	Q-S	55.6	.64	17.2	N-S	U	67.0	4	67.0	3	M	100	70 0	215	Q-U
ND 345	13653	59.5	28.2	9	83	8	73.1	1.93	18.2	Q-S	61.9	.50	17.3	N	Q	67.0	7	67.0	6	M-S	100	90	196	S
ND 363	13828	58.0	29.7	19	75	6	73.7	2.01	18.8	S-Q	60.9	.54	18.2	N	Q	66.6	5	66.6	3-3/4	S	105	90	201	S
ND 364	13829	56.5	23.9	3	86	11	72.6	2.07	19.0	Q-U	60.9	.53	18.2	N	Q	69.1	6	69.1	5	S	105	90 0T	187	S
ND 373	13830	59.0	26.5	10	84	6	73.2	2.02	18.3	Q-S	60.9	.52	18.2	N	Q	67.9	5	67.9	4	S	100	90 T	193	S
ND 404	13778	58.5	26.3	13	77	10	73.2	2.00	18.8	Q-S	59.0	.63	18.3	N	U	66.6	6	66.6	4-1/2	S	105 W	95	194	S
ND 405	13779	56.0	28.9	10	87	7	73.2	2.05	19.1	Q-U	61.4	.54	17.7	N	Q	66.6	6	66.6	5-1/2	S	100	90 0	192	S
ND 406	13780	61.0	29.1	18	76	6	73.6	1.83	17.7	Q-S	56.0	.45	17.6	N-S	U	65.0	5	65.0	4	S	110	70 0	193	Q-U
II-53-525-1	13751	58.5	23.1	6	83	11	72.8	1.97	18.8	Q	60.9	.59	18.1	N	Q-U	67.6	5	67.6	3	M-S	105	70 0	197	Q-U
II-54-29	13654	60.5	27.6	6	84	10	72.8	1.85	17.6	Q	61.7	.45	17.5	N	S	67.6	9	67.6	10-3/4	S	110	80 0	200	Q
II-54-30	13655	61.5	28.1	4	88	8	72.8	1.90	17.4	Q	62.4	.47	17.2	N	S	65.3	5	65.3	4	S	105	80 0	206	Q
II-55-11	13773	61.0	30.7	15	80	5	73.5	1.93	17.8	S-Q	61.2	.52	17.6	N	Q	65.7	7	65.7	5	S	110	95	204	S
II-55-12	13774	60.5	31.4	19	76	5	73.7	1.91	17.9	S-Q	61.2	.50	17.2	N	Q-S	66.0	6	66.0	4-1/2	S	110	90	195	S
II-58-14	13824	58.5	31.3	35	63	2	74.7	1.88	16.9	S	55.6	.59	16.7	N-S	U	66.6	5	66.6	4	S	100 W	90 0	188	S
II-58-57	13825	57.0	22.9	7	79	14	72.7	1.96	18.8	Q-U	55.6	.61	17.9	N-S	U	67.9	5	67.9	4	M-S	95	80 0	203	Q
II-59-9	13826	56.0	26.8	11	80	9	73.1	1.85	18.7	Q-S	57.5	.60	18.7	N	Q-U	67.6	7	67.6	5	S	95	90	209	S-Q
II-59-11	13827	58.5	28.2	13	81	6	73.4	1.78	18.6	Q-S	56.4	.59	18.2	N-S	U	66.6	5	66.6	3	M-S	100	90	198	S
B60-82	13823	57.0	25.7	5	79	16	72.5	1.91	18.5	Q	57.6	.62	18.2	N	U	65.3	5	65.3	3-1/2	M-S	95	95	191	S-Q
B61-95	13586	58.5	28.1	7	84	9	72.9	1.88	18.0	Q	57.5	.54	15.2	N	Q-U	64.2	5	64.2	4	S	100	90	200	S
60-54	13596	58.5	30.9	16	77	7	73.5	1.73	17.7	S-Q	59.0	.53	15.5	N	Q	66.3	5	66.3	3-1/4	M-S	110	80 0	188	Q
6-16-2	13588	58.0	27.5	5	86	9	72.8	2.04	19.2	Q	60.4	.62	15.3	N	U	68.5	6	68.5	5	M-S	110	95	186	S

1/ Clean dry - subtract 1#bu. for dockage free T.W.
2/ 14% moisture basis.
3/ S - Sstisfactory, Q - Questionsble, U - Unsstisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ 0 - Open, I - Irregular, S - Soggy, T - Thick Wsll, Sl - Slightly, C - Close.

TABLE 7

UNIFORM REGIONAL NURSERY SAMPLES

Bozeman, Montana

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Crim	13465	56.0	23.4	6	84	10	72.8	1.70	16.8	Q-U	60.9	.48	16.4	N	Q	65.7	5	65.7	4-1/2	S	100	90 O	181	S
Justin	13462	56.0	24.9	6	85	9	72.9	1.85	17.7	Q-U	62.1	.47	17.2	S	N	65.3	4	65.3	3-1/2	M-S	120 C	80 O	165	Q
Lee	12488	57.0	27.0	12	82	6	73.3	1.63	16.6	Q-S	61.8	.48	15.8	N	Q-S	63.2	3	63.2	2-3/4	M	110	95	178	Q-S
Marquis	3641	58.5	23.9	4	88	8	72.8	1.84	17.2	Q	60.3	.54	16.2	N	U	64.2	4	64.2	3-1/4	M-S	120 C	100	169	S
Pembina	13332	57.0	25.1	7	87	6	73.1	1.72	16.3	Q-S	60.2	.48	15.7	N	Q-S	64.7	4	64.7	3-1/2	M-S	120 C	90 O	177	S
Selkirk	13100	55.0	25.4	7	86	7	73.0	1.83	16.2	Q	62.1	.46	15.6	N	S	63.8	3	63.8	2-1/2	M	100	100	157	Q
Thatcher	10003	57.0	22.2	2	89	9	72.7	1.81	17.3	Q	60.3	.51	16.4	N	Q	62.3	3	62.3	2	M	120 C	80 OI	170	U-Q
RL 4159	13775	58.0	24.3	6	85	9	72.9	1.74	17.4	Q	60.6	.50	16.3	N	Q	61.9	2	61.9	2	M	110 C	80 OI	177	U
ND 229-1	13589	56.0	24.2	9	80	11	72.9	1.78	17.6	Q	60.6	.47	16.6	N	Q	65.0	5	65.0	4-1/2	M-S	100	95	167	S
ND 264	13569	59.0	28.0	16	76	8	73.4	1.80	17.2	Q-S	60.2	.51	15.7	N	Q	64.7	4	64.7	3-1/4	M-S	120 C	95	166	S-Q
ND 345	13653	59.0	27.1	12	81	7	73.3	1.66	16.5	Q-S	62.6	.43	15.7	N	S	63.5	5	63.5	4-1/2	M-S	120 C	80 O	170	Q
ND 363	13828	56.5	25.3	7	85	8	73.0	1.84	16.7	Q	61.4	.48	15.9	N	Q-S	64.2	6	64.2	4	M-S	110 S1C	90 O	178	S
ND 364	13829	56.0	23.7	3	89	8	72.8	1.79	17.0	Q	61.4	.44	16.4	N	Q-S	66.0	5	66.0	4-1/4	M-S	120 S1C	90 O	172	S
ND 373	13830	58.5	25.1	9	84	7	73.1	1.81	16.4	Q-S	61.4	.42	16.0	N	S-Q	66.0	4	66.0	3-3/4	M-S	110 C	80 O	161	Q
ND 404	13778	59.0	28.2	20	74	6	73.7	1.75	16.8	S-Q	60.6	.47	15.9	N	Q	64.7	4	64.7	3	M-S	105 W	90 O	177	S
ND 405	13779	53.5	27.1	6	86	8	72.9	1.79	17.4	Q-U	62.1	.45	17.0	N	S	66.3	6	66.3	5	S	120 C	70 OI	177	U-Q
ND 406	13780	61.0	29.7	21	75	4	73.9	1.62	15.9	S-Q	57.5	.40	15.0	N-S	U	64.2	4	64.2	3-1/4	M	120 C	80 O	167	Q
II-53-525-1	13751	58.0	23.3	7	83	10	72.9	1.79	17.0	Q	61.4	.45	16.7	N	Q-S	64.2	3	64.2	2-1/4	M	120 S1C	95	165	Q
II-54-29	13654	58.0	25.6	5	85	10	72.8	1.69	16.2	Q	63.4	.37	16.0	N	VS	62.8	9	62.8	7	S	110 C	70 OI	184	U-Q
II-54-30	13655	59.0	25.4	4	84	12	72.6	1.65	16.2	Q	64.4	.37	15.6	N	VS	61.9	4	61.9	3-1/4	M-S	120 C	70 OI	181	U
II-55-11	13773	59.5	29.8	16	79	5	73.6	1.71	16.5	S-Q	64.9	.45	16.0	N	S	67.0	6	67.0	4-3/4	M-S	110 C	95	177	S
II-55-12	13774	59.0	32.9	23	73	4	74.0	1.73	16.5	S	64.9	.48	16.0	N	S	65.3	5	65.3	4	M-S	110 S1C	95	177	S
II-58-14	13824	58.0	31.2	37	60	3	74.7	1.72	15.8	S	60.9	.49	15.1	N	Q	66.3	4	66.3	3-1/4	M-S	105	90	171	S
II-58-57	13825	57.5	23.0	5	82	13	72.6	1.69	17.1	Q	59.4	.56	16.1	N	U-Q	66.3	4	66.3	3-1/4	M-S	90	90 O	176	Q-S
II-59-9	13826	55.0	27.7	17	75	8	73.5	1.70	16.5	S-Q	62.1	.51	15.7	N	S-Q	66.3	6	66.3	4-1/4	M-S	95	90 O	183	S-Q
II-59-11	13827	59.0	27.4	8	83	9	73.0	1.64	16.8	Q-S	60.6	.54	16.2	N	Q	66.3	5	66.3	3	M	110 S1C	100	178	S
B60-82	13823	56.0	22.6	2	80	18	72.2	1.69	17.1	Q-U	60.2	.49	16.7	N	Q-S	65.3	5	65.3	3	M	110 S1C	95	168	S
B61-95	13586	58.0	26.1	6	84	10	72.8	1.71	16.6	Q	60.6	.44	16.3	N	Q-S	64.2	4	64.2	3-1/2	M-S	95	90 O	180	S-Q
60-54	13596	58.0	29.2	9	83	8	73.1	1.69	16.3	Q-S	52.9	.46	15.7	N	S	64.2	5	64.2	4	M-S	105 C	95	170	S
6-16-2	13588	57.5	27.9	6	87	7	73.0	1.81	17.5	Q-U	60.9	.56	17.0	N	Q-U	67.0	5	67.0	4	M-S	110 BC	90	164	S

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

TABLE 8

UNIFORM REGIONAL NURSERY SAMPLES

Blend of Carrington and Langdon, North Dakota

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
				Lg.	Med.	Sm.																		
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Crim	13465	58.5	24.8	28	68	4	74.2	1.85	14.5	S	62.0	.44	14.0	N	S	64.7	6	64.7	5-1/4	M-S	115 SlC	95	180	S
Justin	13462	58.5	31.9	39	58	3	74.8	1.94	16.4	S	60.4	.41	15.8	N	Q-S	64.2	5	64.2	3-1/2	S	110 SlC	80 O	178	Q
Lee	12488	56.0	25.1	16	73	11	73.3	1.88	14.1	Q-S	57.9	.46	13.7	N	Q-U	60.7	4	60.7	3-1/2	M-S	110 SlC	95	181	Q
Marquis	3641	51.5	14.1	4	65	31	71.7	2.12	14.9	U	52.4	.53	14.0	N-S	U	60.3	2	60.3	2	WD	105 BC	90 T	161	U
Pembina	13332	58.0	24.2	14	78	8	73.3	1.73	14.7	Q-S	59.6	.46	14.3	N	Q	60.7	7	60.7	5	S	110 SlC	80 O	200	Q
Selkirk	13100	56.5	24.1	13	80	7	73.3	1.85	15.0	Q	62.8	.47	14.7	N	S	61.9	3	61.9	2-3/4	M	110 SlC	90	178	Q
Thatcher	10003	57.5	21.4	13	74	13	73.0	1.80	14.5	Q	62.4	.47	14.2	N	S	60.7	3	60.7	2-3/4	M-S	110 SlC	90	174	Q
RL 4159	13775	60.0	26.2	22	75	3	74.0	1.82	15.6	S	62.4	.47	14.9	N	S	60.7	2	60.7	2	M	110 SlC	80 O	183	Q-U
ND 229-1	13589	58.5	27.9	40	57	3	74.9	1.70	14.5	S	62.0	.42	13.9	N	S	61.9	6	61.9	5-1/2	M-S	110 SlC	80 O	179	Q
ND 264	13569	60.5	31.9	40	56	4	74.8	1.71	14.9	S	60.8	.43	13.6	N	Q	61.9	5	61.9	3-1/4	M-S	110	95	174	S-Q
ND 345	13653	60.0	29.3	54	43	3	75.6	1.69	15.3	S	60.7	.46	14.3	N	Q	62.3	5	62.3	4	S	105	100	184	S
ND 363	13828	58.0	27.2	35	62	3	74.6	1.65	15.0	S	61.5	.43	14.3	N	S-Q	62.3	4	62.3	3	M-S	110 SlC	90 O	181	S
ND 364	13829	58.5	28.3	29	67	4	74.3	1.78	15.3	S	60.3	.40	14.7	N	Q	62.5	4	62.5	2-3/4	M	110 SlC	95 C	170	S-Q
ND 373	13830	61.0	31.6	49	49	2	75.4	1.75	14.2	S	60.1	.42	13.7	N	Q	61.9	3	61.9	2-1/4	M	110 SlC	90	173	Q
ND 404	13778	60.5	27.6	31	66	3	74.4	1.75	15.1	S	60.3	.43	14.1	N	Q	61.3	5	61.3	4-3/4	M-S	105 SlC	95	193	S-Q
ND 405	13779	59.0	32.1	51	48	2	75.5	1.78	14.8	S	60.6	.41	14.1	N	Q	62.5	5	62.5	3-3/4	M-S	110	90	185	S
ND 406	13780	62.0	31.9	58	40	2	75.8	1.72	14.8	S	54.2	.46	13.5	N-S	U	62.5	4	62.5	2-3/4	M-S	105 C	90	173	S-Q
II-53-525-1	13751	60.0	28.5	25	72	3	74.1	1.72	16.2	S	60.3	.48	15.0	N	Q	62.5	3	62.5	2-1/2	M	105 C	95	176	Q
II-54-29	13654	62.0	31.1	29	68	3	74.3	1.67	13.8	S	64.3	.37	13.4	N	VS	60.7	7	60.7	6	S	115 BC	95	173	Q
II-54-30	13655	62.5	29.1	27	71	2	74.3	1.65	13.7	S	64.8	.34	13.3	N	VS	60.3	3	60.3	3	M	105 SlC	90	181	Q
II-55-11	13773	61.0	33.6	55	42	3	75.6	1.74	14.6	S	60.6	.40	14.2	N	Q	62.3	4	62.3	3	M-S	110	90	196	S
II-55-12	13774	61.5	36.9	55	42	3	75.6	1.74	15.0	S	60.3	.40	14.3	N	Q	61.6	3	61.6	2-3/4	M	110	90	192	Q
II-58-14	13824	58.0	28.0	60	38	2	75.9	1.82	15.1	S	58.2	.43	14.3	N	Q	62.5	4	62.5	3-1/4	S	105	95	180	S
II-58-57	13825	59.5	23.6	14	78	8	73.3	1.78	14.5	S-Q	58.0	.43	13.9	N	Q	66.3	5	66.3	4-1/2	M-S	105	90	179	S
II-59-9	13826	57.5	36.2	49	47	4	75.3	1.66	14.4	S	61.4	.41	14.1	N	Q-S	64.2	5	64.2	4-1/4	M-S	100	90 O	187	S
II-59-11	13827	57.5	28.1	14	79	7	73.4	1.82	16.4	Q-S	56.8	.48	15.8	N-S	Q-U	65.7	5	65.7	3-3/4	S	100	90	187	S
B60-82	13823	59.5	25.1	9	84	7	73.1	1.74	13.6	Q-S	57.3	.44	13.4	N-S	U-Q	61.9	4	61.9	3-1/4	S	100 W	95	184	S-Q
B61-95	13586	59.0	24.2	8	85	7	73.1	1.76	13.6	Q-S	58.0	.42	13.3	N	Q	61.9	5	61.9	4	S	100 W	90	190	S-Q
60-54	13596	57.0	27.9	9	83	8	73.1	1.86	14.4	Q-S	58.3	.44	14.2	N	Q	62.5	3	62.5	2-3/4	M	105 CB	90	178	Q
6-16-2	13588	60.0	31.8	40	56	4	74.8	1.84	15.0	S	58.9	.46	14.5	N	Q	64.4	5	64.4	4-1/4	M-S	100	90	190	S

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

TABLE 9

UNIFORM REGIONAL NURSERY SAMPLES

Blend of Casselton and Fargo, North Dakota

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Med.	Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Crim	13465	61.0	29.6	32	66	2	74.5	1.79	15.1	S	59.5	.49	14.2	N	Q	62.3	5	62.3	5	S	110 W	80 O	188	Q
Justin	13462	60.0	30.6	25	73	2	74.2	1.97	17.0	S	60.3	.46	16.5	N	Q	64.2	5	64.2	4	S	110	95	181	S
Lee	12488	59.0	28.2	16	78	6	73.5	1.73	13.5	S-Q	56.8	.54	13.0	N	U	58.7	5	58.7	4-3/4	M-S	110 W	90 O	180	Q
Marquis	3641	54.0	17.7	2	68	30	71.6	2.09	14.3	U	54.5	.53	13.8	N	U	59.3	2	59.3	2-1/2	M-S	105 C	90 C	174	U
Pembina	13332	57.5	22.8	4	89	7	72.9	1.84	15.4	Q-U	57.7	.50	15.0	N	U-Q	61.9	8	61.9	7-1/4	S	115	70 O	199	U-Q
Selkirk	13100	57.0	30.0	11	83	6	73.3	1.90	15.6	Q-S	61.5	.46	15.1	N	S-Q	61.9	4	61.9	4	M	105 S1C	90 C	177	S-Q
Thatcher	10003	56.5	20.0	2	83	15	72.4	1.93	15.0	Q-U	57.5	.50	14.1	N	Q-U	59.7	5	59.7	4	M-S	105 C	90 C	174	Q
RL 4159	13775	60.5	25.8	10	88	2	73.4	1.79	16.2	Q-S	59.2	.49	15.6	N	Q	60.3	3	60.3	2-1/2	M	110	70 O	193	U
ND 229-1	13589	59.5	28.2	28	68	4	74.2	1.77	15.3	S	59.7	.47	14.7	N	Q	62.3	6	62.3	7	M-S	105	90	180	S
ND 264	13569	61.5	30.3	19	78	3	73.8	1.82	15.5	S-Q	56.8	.46	14.2	N	U-Q	62.5	4	62.5	3-1/2	M-S	110 W	80 O	185	Q
ND 345	13653	62.0	30.4	23	75	2	74.1	1.75	16.1	S	60.6	.40	15.2	N	Q	62.5	6	62.5	5-1/2	S	120	70 O	191	Q
ND 363	13828	60.0	34.2	43	55	2	75.1	1.86	15.5	S	57.7	.45	14.9	N	Q-U	61.9	4	61.9	3-1/4	M-S	105	80 O	184	Q
ND 364	13829	59.5	28.4	12	86	2	73.6	1.88	16.8	S-Q	58.7	.44	16.3	N	Q	63.5	4	63.5	3-3/4	S	90	95	175	S-Q
ND 373	13830	61.5	28.0	31	67	2	74.5	1.82	16.3	S	56.3	.49	16.0	N-S	U	63.5	3	63.5	2-1/4	M	100	70 O	188	Q-U
ND 404	13778	61.5	25.6	29	68	3	74.3	1.81	15.2	S	57.7	.48	14.1	N	Q	61.6	6	61.6	6-1/4	M-S	110	95	178	Q-S
ND 405	13779	59.5	31.3	42	56	2	75.0	1.74	16.2	S	57.0	.43	15.7	N	Q	64.2	5	64.2	4-1/4	M-S	105	80 O	184	Q
ND 406	13780	64.0	35.2	54	45	1	75.7	1.76	16.0	S	51.9	.42	14.6	N-S	U	63.5	3	63.5	2-1/4	M	110 S1C	90	160	U-Q
II-53-525-1	13751	61.5	29.4	20	78	2	73.9	1.66	16.6	S-Q	58.7	.43	16.4	N	Q	64.2	4	64.2	2-3/4	S	110	80 O	181	Q
II-54-29	13654	63.0	33.9	20	77	3	73.9	1.62	15.4	S-Q	60.1	.37	15.0	N	Q-S	62.5	8	62.5	7	M-S	120 BC	90	168	S
II-54-30	13655	63.0	29.4	9	88	3	73.3	1.60	15.1	Q-S	60.3	.37	14.7	N	Q-S	61.0	4	61.0	3-1/4	M-S	105 C	90	178	Q
II-55-11	13773	63.0	32.6	49	49	2	75.4	1.76	15.9	S	62.6	.43	15.4	N	S	64.2	4	64.2	3-1/4	M-S	110 W	70 O	190	Q-U
II-55-12	13774	63.0	39.1	57	41	2	75.8	1.71	15.7	S	62.4	.44	15.2	N	S	63.5	4	63.5	3	M-S	105	90	192	S
II-58-14	13824	59.5	35.5	57	43	0	75.9	1.74	15.8	S	58.2	.46	14.8	N	Q	63.8	4	63.8	3-1/4	M-S	105	80 O	174	Q
II-58-57	13825	61.0	23.7	10	85	5	72.3	1.75	15.1	Q	59.7	.46	14.6	N-S	Q	63.2	5	63.2	4-1/4	M-S	105	95	179	S
II-59-9	13826	59.5	32.4	40	58	2	74.9	1.62	15.1	S	62.6	.43	14.5	N	S	62.3	5	62.3	4-1/2	M-S	105	90	194	S
II-59-11	13827	62.0	32.9	37	62	1	74.8	1.64	15.7	S	61.2	.47	14.9	N	S-Q	62.8	4	62.8	3-1/2	S	105 W	95	183	S
B60-82	13823	62.0	28.1	13	83	4	73.5	1.60	14.8	S-Q	60.6	.43	14.0	N	Q-S	61.3	4	61.3	3-1/4	M-S	110	90	193	Q-S
B61-95	13586	62.5	32.8	20	77	3	73.9	1.60	14.7	S-Q	60.7	.41	14.1	N	Q-S	61.9	4	61.9	3-1/2	S	105	80 O	193	Q
60-54	13596	61.5	42.6	43	56	1	75.1	1.71	15.3	S	60.8	.47	14.5	N	Q	62.3	4	62.3	3-1/2	M-S	110 S1C	80 O	178	Q
6-16-2	13588	62.0	30.9	31	67	2	74.5	1.90	17.0	S	62.1	.51	16.4	N	S	65.3	4	65.3	3-1/2	M-S	120 BC	90	191	S

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory V - Very.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

TABLE 10

UNIFORM REGIONAL NURSERY SAMPLES

Blend of Dickinson & Williston, North Dakota and Sidney, Montana

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pst. 5/	Bake Abs. 2/	Mix. Time	Dough Chr. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval 3/
				Lg.	Med.	Sm.																		
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Crim	13465	60.0	25.8	19	76	5	73.7	1.73	15.5	S-Q	61.7	.49	15.3	N	Q	65.3	6	65.3	5-1/4	M-S	115	100	186	S
Justin	13462	59.0	25.9	14	81	5	73.5	1.84	16 3	S-Q	60.9	.48	15.5	N	Q	64.2	5	64.2	3-3/4	M-S	110	95	186	S
Lee	12488	59.5	25.0	12	81	7	73.4	1.76	15.9	Q-S	60.0	.57	15.4	N	Q	61.3	3	61.3	3	M-S	100 W	95	191	S-Q
Marquis	3641	58.0	23.9	7	85	8	73.0	1.81	15.3	Q-S	60.6	.48	15.1	N	Q	60,7	4	60.7	3-1/4	M-S	105 SlC	90	178	Q-S
Pembina	13332	59.0	23.3	6	85	9	72.9	1.74	15.7	Q	59.3	.49	14.7	N	Q-U	61.0	5	61.0	4-1/4	S	105 SlC	90	196	S-Q
Selkirk	13100	58.0	25.1	10	83	7	73.2	1.81	15.7	Q	62.6	.46	15.5	N	S	61.6	3	61.6	3	M	105 SlC	100	173	S
Thatcher	10003	59.5	20.4	4	84	12	72.6	1.73	15.9	Q	60.0	.48	14.9	N	Q-S	60.3	3	60.3	2-3/4	M-S	115 SlC	90	184	Q
RL 4159	13775	59.5	22.4	6	85	9	72.9	1.72	16.1	Q	60.3	.49	14.8	N	Q	60.0	2	60.0	2-1/4	M	95 SlC	90	180	Q-U
ND 229-1	13589	58.5	25.9	15	79	6	73.5	1.71	15.9	S-Q	59.5	.48	15.0	N	Q	62.3	4	62.3	4-1/2	M-S	105	90 O	185	S
ND 264	13569	59.0	26.0	8	82	10	72.9	1.81	16.4	Q-S	59.3	.49	15.5	N	Q-U	62.5	6	62.5	4-1/4	M-S	105	90	185	S
ND 345	13653	61.0	25.8	14	80	6	73.4	1.68	16.2	S-Q	59.8	.44	15.6	N	Q	63.5	6	63.5	4-3/4	M-S	110 SlC	80 O	185	Q
ND 363	13828	59.5	26.5	20	76	4	73.8	1.83	16.4	S-Q	60.5	.44	15.7	N	Q	63.2	4	63.2	3-1/2	M-S	105 SlC	80 O	201	Q
ND 364	13829	58.0	23.2	4	86	10	72.7	1.79	16.5	Q	60.7	.43	15.1	N	Q	65.3	5	65.3	4-3/4	S	105 BC	95	179	S
ND 373	13830	59.5	24.7	9	85	6	73.2	1.82	15.9	S-Q	59.3	.50	15.5	N	U	62.8	3	62.8	3	M-S	115 SlC	90 O	178	S
ND 404	13778	61.0	25.5	17	79	4	73.7	1.83	16.3	S-Q	58.8	.54	15.4	N	U	62.3	4	62.3	3-3/4	M	110	95	200	S
ND 405	13779	58.5	27.9	15	77	8	73.4	1.80	16.3	S-Q	59.8	.47	14.9	N	Q	62.3	5	62.3	4-1/2	M-S	105	90 O	190	S
ND 406	13780	63.0	29.0	26	69	5	74.1	1.69	15.6	S	54.5	.45	15.3	N-S	U	61.3	4	61.3	3-1/4	M-S	110	70 O	184	U
II-53-525-1	13751	60.0	22.9	5	86	9	72.8	1.79	16.1	U-Q	60.2	.53	15.3	N	U	61.0	3	61.0	2-3/4	M	115 SlC	80 O	187	Q-U
II-54-29	13654	61.5	23.5	5	85	10	72.8	1.67	15.2	Q	60.3	.40	15.0	N	Q	60.3	10	60.3	7-1/2	M-S	110 SlC	80	188	U-Q
II-54-30	13655	61.5	20.8	2	83	15	72.4	1.66	15.1	U-Q	61.2	.41	14.9	N	Q	61.0	4	61.0	3-1/4	M-S	115 C	80	179	Q-U
II-55-11	13773	62.5	29.8	16	79	5	73.6	1.73	15.8	S-Q	60.3	.45	15.0	N	Q	62.5	4	62.5	3-1/4	M-S	105	90	193	S
II-55-12	13774	62.0	30.1	21	75	4	73.9	1.71	15.5	S	60.3	.44	14.9	N	Q	61.6	4	61.6	3-1/4	M-S	110 SlC	95	196	S-Q
II-58-14	13824	59.5	31.7	34	64	2	74.6	1.76	15.6	S	57.2	.56	15.0	N	U	63.5	5	63.5	3-3/4	M-S	110	95 SlI	183	S
II-58-57	13825	60.0	22.1	5	84	11	72.7	1.68	15.5	Q-U	56.1	.56	15.2	N-S	U	62.8	4	62.8	3-1/4	M-S	105	95	192	S
II-59-9	13826	58.5	28.8	27	67	6	74.1	1.65	15.7	S	59.1	.49	15.0	N	Q-U	62.5	5	62.5	4-1/4	S	105 SlC	90	201	S
II-59-11	13827	61.0	28.4	10	83	7	73.2	1.75	15.6	Q-S	57.2	.51	15.1	N	U	62.8	4	62.8	3-1/2	M-S	100	95	191	S
B60-82	13823	59.5	25.1	5	85	10	72.8	1.69	15.5	Q	56.1	.50	14.8	N	U	61.3	3	61.3	3	S	100 W	95	190	S-Q
B61-95	13586	59.0	21.3	4	85	11	72.7	1.69	15.2	U	55.9	.49	14.6	N	U	61.0	5	61.0	4	M-S	105 SlC	80 O	202	Q-U
60-54	13596	59.5	26.3	9	81	10	73.0	1.77	15.2	Q	57.9	.48	14.8	N	U	61.9	4	61.9	3-1/4	M-S	105 SlC	80 O	192	Q
6-16-2	13588	61.0	28.4	10	85	5	73.3	1.87	16.7	Q-S	58.7	.55	16.1	N	U	64.4	5	64.4	4	M-S	105 SlC	90	192	S

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

TABLE 11

UNIFORM REGIONAL NURSERY SAMPLES

Blend of Highmore and Watertown, South Dakota

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time.	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
				Lg.	Med.	Sm.																		
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Crim	13465	59.5	28.8	26	70	4	74.1	1.80	16.5	S	61.0	.51	15.8	N	Q	67.0	5	67.0	4-1/2	S	100	70 O	216	Q-U
Justin	13462	58.0	26.6	11	83	6	73.3	2.02	17.6	Q-S	60.4	.50	17.2	N	Q	66.6	5	66.6	4-1/2	S	90	70 OI	185	Q-U
Lee	12488	58.0	27.9	8	85	7	73.1	1.85	15.5	Q	58.5	.56	14.8	N	U	62.8	5	62.8	4-1/2	S	100	80 O	200	Q
Marquis	3641	49.5	14.7	1	61	38	71.2	2.21	14.1	U	50.7	.70	13.5	N	U	58.7	3	58.7	2-3/4	M	105 VC	95 C	174	U
Pembina	13332	58.0	25.1	6	87	7	73.0	1.84	16.1	Q	59.6	.55	15.6	N	U	63.5	6	63.5	5	M-S	100 S1C	90 O	191	S
Selkirk	13100	55.5	24.3	8	84	8	73.0	1.96	16.2	Q-U	61.8	.53	16.0	N	Q	64.2	4	64.2	3	M	100 S1C	95 T	174	S
Thatcher	10003	56.5	22.5	3	84	13	72.5	1.97	16.1	Q-U	58.0	.55	15.5	N	U	61.9	3	61.9	3	M-S	105 C	90	188	S-Q
RL 4159	13775	58.0	21.9	6	87	7	73.0	1.93	17.2	Q	58.7	.55	16.4	N	U	62.5	3	62.5	2-1/4	M	100 S1C	90	187	Q
ND 229-1	13589	56.0	22.6	12	77	11	73.1	1.90	16.7	Q-U	58.7	.53	16.3	N	U	64.7	7	64.7	7-3/4	S	105	95	190	S
ND 264	13569	58.0	27.2	14	78	8	73.3	2.00	17.7	Q	57.5	.56	16.7	N	U	64.7	5	64.7	3-3/4	S	110 W	70 O	210	U-Q
ND 345	13653	60.0	27.1	19	76	5	73.7	1.82	17.1	S-Q	58.2	.50	15.9	N	Q-U	64.7	7	64.7	5-1/2	S	110 S1C	90	199	S
ND 363	13828	59.0	28.1	25	71	4	74.1	1.92	16.7	S	59.6	.49	16.1	N	Q-S	63.5	4	63.5	3	M	105	90	198	S
ND 364	13829	56.0	20.1	4	86	10	72.7	2.00	17.4	Q	58.7	.49	17.1	N	Q	64.7	4	64.7	3-3/4	S	105 C	90	191	S
ND 373	13830	60.0	27.5	16	80	4	73.6	1.90	16.7	S-Q	58.5	.44	16.4	N	Q-U	65.0	4	65.0	3	M-S	105 S1C	80 O	189	Q
ND 404	13778	60.0	27.2	15	79	6	73.5	1.86	15.9	Q-S	58.2	.52	15.1	N	U	64.4	6	64.4	5-1/2	S	115 S1C	90	188	S
ND 405	13779	57.0	34.7	22	74	4	73.9	1.90	17.5	S-Q	59.6	.50	17.0	N	Q	66.3	6	66.3	5	M-S	110 S1C	80 OI	210	Q-S
ND 406	13780	62.5	30.4	42	55	3	75.0	1.79	16.4	S	52.4	.45	16.0	N-S	U	63.2	4	63.2	2-3/4	M	110 W	90 OI	180	Q
II-53-525-1	13751	60.0	25.9	10	84	6	73.2	1.82	17.4	Q-S	59.5	.55	16.9	N	U	64.4	3	64.4	3	M	110 W	70 O	200	Q-U
II-54-29	13654	62.0	29.2	13	83	4	73.5	1.80	16.3	S-Q	60.8	.44	15.7	N	S-Q	63.2	7	63.2	6-3/4	S	115 S1C	90 I	178	S
II-54-30	13655	62.0	26.9	5	89	6	73.0	1.77	15.9	Q	61.3	.43	15.4	N	S	62.5	4	62.5	3-1/2	M-S	115 S1C	70 O	184	Q-U
II-55-11	13773	61.5	30.4	35	62	3	74.6	1.84	16.3	S	59.6	.48	15.5	N	Q	63.2	4	63.2	3-1/4	M-S	110 W	80 O	200	Q
II-55-12	13774	61.5	35.0	33	63	4	74.5	1.82	16.4	S	60.1	.50	15.9	N	Q-S	63.5	4	63.5	3-1/2	M-S	105	90 C	200	S
II-58-14	13824	58.5	31.5	44	54	2	75.1	1.90	16.3	S	54.5	.55	15.5	N	U	64.7	4	64.7	3-1/4	M-S	100	95 C	170	S
II-58-57	13825	60.0	25.0	13	81	6	73.4	1.86	16.6	Q-S	55.7	.53	16.1	N	U	66.3	5	66.3	3	M-S	115 W	80 O	203	Q
II-59-9	13826	58.0	30.6	23	72	5	73.9	1.81	16.5	S-Q	57.7	.50	15.9	N	U-Q	66.3	6	66.3	3-3/4	S	100 W	90	216	S
II-59-11	13827	61.0	31.1	23	73	4	74.0	1.86	16.6	S	55.5	.60	16.0	N	U	64.7	4	64.7	3	M-S	100 W	90	201	S
B60-82	13823	59.0	23.9	5	86	9	72.8	1.83	16.2	Q	57.1	.52	15.6	N	U	62.5	4	62.5	3-1/4	M-S	100 W	95	193	S
B61-95	13586	59.5	25.1	7	85	8	73.0	1.82	15.9	Q	56.1	.56	15.4	N	U	61.9	5	61.9	3-3/4	S	105 W	90	214	S-Q
60-54	13596	60.0	35.5	28	69	3	74.3	1.88	16.3	S	57.3	.56	15.7	N	U	62.5	3	62.5	2-1/2	M	110	95	185	Q
6-16-2	13588	60.5	28.2	14	82	4	73.5	2.01	17.4	S-Q	60.6	.52	16.9	N	Q-U	64.2	4	64.2	3-1/2	S	100	90 O	194	S

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

TABLE 12

UNIFORM REGIONAL NURSERY SAMPLES

Madison, Wisconsin

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Crim	13465	59.5	34.6	63	35	2	76.1	1.83	13.0	S	62.1	.50	12.1	N	S-Q	61.9	4	61.9	5	M-S	105 W	90	160	S
Justin	13462	60.0	32.6	41	56	3	74.9	2.19	15.2	S	63.4	.50	14.3	N	S-Q	62.8	5	62.8	4-3/4	S	110 W	90 IO	182	S
Lee	12488	59.0	35.1	54	43	3	75.6	1.85	13.6	S	61.1	.55	12.8	N	Q-U	61.0	4	61.0	3-1/2	M-S	105 W	95 S1O	163	S-Q
Marquis	3641	59.0	25.6	10	83	7	73.2	1.95	13.8	Q-S	61.2	.53	12.9	N	Q	60.3	4	60.3	3-3/4	M-S	100	100	164	Q-S
Pembina	13332	58.5	29.3	21	76	3	73.9	1.83	13.5	S-Q	61.1	.53	12.7	N	Q	58.7	10	58.7	6-1/4	M-S	100	95	189	Q
Selkirk	13100	57.0	33.6	41	56	3	74.9	1.84	13.0	S	63.8	.50	12.2	N	S-Q	61.0	3	61.0	3-3/4	M	100 W	95	171	Q-S
Thatcher	10003	60.0	27.5	13	84	3	73.5	1.82	13.5	S-Q	63.4	.55	12.5	N	Q-U	60.3	4	60.3	3-3/4	M	110 S1C	100	165	Q
RL 4159	13775	60.5	28.4	30	65	5	74.3	1.78	14.2	S	62.6	.53	13.1	N	Q	61.3	4	61.3	3-1/2	M-S	110 S1C	90 O	173	S-Q
ND 229-1	13589	60.0	31.5	51	45	4	75.4	1.81	12.7	S	61.4	.53	11.8	N	Q	61.6	5	61.6	5-1/4	M	100 W	90 OI	163	S-Q
ND 264	13569	61.5	33.9	46	51	3	75.2	1.84	13.9	S	60.6	.53	12.5	N	Q-U	62.5	5	62.5	4-3/4	M	100 W	95	167	S
ND 345	13653	62.0	33.7	58	39	3	75.8	1.75	14.0	S	61.8	.47	12.8	N	S	61.6	6	61.6	5-1/4	M-S	100 BW	80 OI	167	Q
ND 363	13828	61.0	36.4	64	33	3	76.1	1.92	14.3	S	62.3	.49	13.3	N	S	61.9	4	61.9	3-3/4	M-S	100 W	90 O	172	S-Q
ND 364	13829	59.5	28.5	20	75	5	73.8	1.87	14.9	S-Q	62.6	.46	13.9	N	S	63.5	5	63.5	4-1/2	S	110 S1C	95	174	S
ND 373	13830	61.5	32.6	54	43	3	75.6	1.85	13.9	S	62.1	.41	13.1	N	S	62.5	4	62.5	3-1/2	S	105 S1C	95	167	S
ND 404	13778	62.0	33.6	53	43	4	75.5	1.82	13.7	S	59.4	.55	12.4	N	U	61.3	5	61.3	4-1/2	M	105 W	90 I	160	S-Q
ND 405	13779	59.0	36.8	54	44	2	75.6	1.86	13.9	S	62.6	.48	12.9	N	S	61.9	5	61.9	5-1/4	M-S	100 W	80 IO	180	Q
ND 406	13780	63.0	37.5	73	24	3	76.5	1.76	13.5	S	56.9	.46	12.1	N-S	U	61.9	5	61.9	3-3/4	M-S	100	90 I	141	Q
II-53-525-1	13751	62.0	29.8	35	63	2	74.7	1.87	13.4	S	61.4	.52	12.7	N	Q	61.3	4	61.3	3-1/2	M-S	100	95	165	S-Q
II-54-29	13654	63.0	33.6	31	66	3	74.4	1.75	13.3	S	63.9	.44	12.5	N	S	60.3	9	60.3	8-1/2	S	110 S1C	90	149	U
II-54-30	13655	63.5	32.4	25	73	2	74.2	1.80	12.6	S	65.2	.45	11.7	N	S	59.3	5	59.3	3-3/4	M-S	110 S1C	80 OI	160	U
II-55-11	13773	63.0	41.3	75	24	1	76.7	1.82	14.3	S	61.4	.47	13.3	N	Q	61.3	6	61.3	4-1/2	M-S	120 W	90	172	Q
II-55-12	13774	63.5	40.7	73	25	2	76.6	1.77	14.2	S	61.1	.53	13.7	N	Q	62.3	5	62.3	4-1/4	M-S	120 W	90	185	S
II-58-14	13824	59.5	36.2	69	30	1	76.4	1.87	14.5	S	57.6	.51	13.6	N-S	U	63.8	5	63.8	3-3/4	M-S	95	70 O	157	U
II-58-57	13825	58.5	27.2	29	68	3	74.3	1.79	13.2	S	58.8	.53	12.5	N	U	61.0	6	61.0	4-3/4	M-S	120 BW	80 O	177	Q
II-59-9	13826	59.5	38.2	67	31	2	76.3	1.77	13.3	S	59.8	.53	11.9	N	Q	61.0	5	61.0	4-3/4	M-S	110 W	90	171	Q-S
II-59-11	13827	62.5	35.1	51	47	2	75.5	1.76	13.6	S	57.6	.59	12.8	N-S	U	61.6	6	61.6	4-3/4	M-S	105 W	90	165	S-Q
B60-82	13823	61.5	31.5	23	74	3	74.0	1.81	12.7	S	60.0	.54	12.0	N	Q	59.7	4	59.7	3-1/2	M-S	120 W	90 O	172	U-Q
B61-95	13586	62.0	33.0	25	72	3	74.1	1.79	13.1	S	59.8	.50	12.1	N	Q	60.7	5	60.7	4	M-S	100 W	90 O	179	Q
60-54	13596	61.0	38.5	46	51	3	75.2	1.80	13.8	S	60.9	.54	13.1	N	Q	60.0	3	60.0	2-3/4	M	110 C	95	170	Q
6-16-2	13588	61.0	35.5	44	54	2	75.1	1.85	14.5	S	61.8	.52	13.7	N	Q	62.5	5	62.5	4-3/4	S	100	90 OI	181	S

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

TABLE 13

UNIFORM REGIONAL NURSERY SAMPLES

Sheridan, Wyoming

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
		#/B	g.	%	%	%	%	%	%		%		%			%		%	min.				cc.	
Crim	13465	59.5	30.7	29	65	6	74.2	1.48	16.1	S	59.3	.40	14.9	N	Q	65.3	3	65.3	2	M	105	95	182	Q-U
Justin	13462	58.0	29.2	18	74	8	73.5	1.60	17.3	S-Q	60.4	.37	16.4	N	S-Q	66.6	4	66.6	2-1/2	S	95	90 IO	185	Q
Lee	12488	60.5	30.4	22	74	4	73.9	1.47	16.4	S	55.7	.38	15.5	N	U	62.3	2	62.3	1-1/2	M	110 W	90	174	Q-U
Marquis	3641	60.0	27.9	16	77	7	73.5	1.60	16.2	S-Q	58.7	.44	14.9	N	Q	60.0	2	60.0	1-3/4	M	115 BC	90	171	Q-U
Pembina	13332	59.5	27.9	12	82	6	73.3	1.51	15.9	Q-S	60.6	.41	15.4	N	Q-S	62.3	4	62.3	3-1/4	S	120 BC	80 OI	186	Q
Selkirk	13100	58.5	31.2	17	75	8	73.5	1.54	15.7	S-Q	64.0	.40	15.2	N	S	61.3	2	61.3	1-3/4	M	105	95	169	U
Thatcher	10003	60.5	27.7	14	80	6	73.4	1.54	16.4	Q-S	59.2	.43	15.6	N	Q	62.8	2	62.8	1-1/2	W	100	95	169	U
RL 4159	13775	60.5	27.0	13	82	5	73.4	1.53	17.1	S-Q	59.3	.40	16.2	N	Q	63.2	2	63.2	1-1/2	W	110	80 OI	180	U
ND 229-1	13589	59.0	30.1	29	60	11	73.9	1.63	16.3	S	58.2	.42	16.3	N	Q	62.5	2	62.5	2	W	110 BC	95	180	U
ND 264	13569	61.0	32.6	25	68	7	73.9	1.57	16.4	S	58.0	.41	14.7	N	Q	63.5	3	63.5	2	W	110 C	90 T	165	U
ND 345	13653	60.5	28.2	13	82	5	73.4	1.49	17.4	S-Q	57.1	.41	15.5	N	Q	63.5	3	63.5	2-1/2	M	110 BC	95	181	Q
ND 363	13828	60.0	29.2	21	74	5	73.8	1.54	16.7	S-Q	60.1	.40	15.5	N	S-Q	63.5	3	63.5	2-3/4	M-S	110 BC	95 SlI	188	S-Q
ND 364	13829	58.5	25.6	6	87	7	73.0	1.64	16.2	Q-S	63.1	.41	15.6	N	S	64.2	4	64.2	2-1/2	S	120 BC	95 SlI	179	S-Q
ND 373	13830	59.5	27.2	16	77	7	73.5	1.60	16.3	S-Q	58.0	.49	15.4	N	Q	63.8	2	63.8	2	M	110 BC	89 OI	172	Q-U
ND 404	13778	60.5	30.0	26	68	6	74.0	1.73	17.5	S	55.7	.52	16.4	N	U	64.2	2	64.2	1-3/4	M-W	100 W	90 O	193	U
ND 405	13779	59.0	33.6	23	72	5	73.9	1.55	16.7	S	59.0	.50	15.9	N	Q-U	63.5	3	63.5	2-1/2	M	110 BC	80 OI	191	Q-U
ND 406	13780	62.0	31.2	31	64	5	74.3	1.43	15.9	S	54.2	.49	14.3	N-S	U	63.8	3	63.8	2-1/4	M	120 BC	70 OI	170	U
II-53-525-1	13751	61.0	27.0	10	86	4	73.3	1.64	16.8	Q-S	60.6	.53	16.1	N	U	63.8	3	63.8	1-3/4	M	110 BC	90 O	179	U-Q
II-54-29	13654	62.0	29.8	8	88	4	73.2	1.36	15.7	Q-S	59.9	.40	14.9	N	Q	62.3	4	62.3	3-3/4	S	110 C	80 OI	150	Q
II-54-30	13655	62.5	29.6	7	88	5	73.1	1.45	16.1	Q-S	60.6	.41	15.2	N	Q	61.0	2	61.0	2-1/2	M	105 C	90	184	U
II-55-11	13773	62.0	35.2	37	59	4	74.7	1.52	16.5	S	61.2	.44	15.7	N	S-Q	64.2	3	64.2	3	M-S	120 SlC	70 IO	209	U-Q
II-55-12	13774	62.0	35.3	36	58	6	74.5	1.57	16.4	S	61.2	.46	15.7	N	S-Q	64.2	3	64.2	3	M-S	120 SlC	70 OI	190	U-Q
II-58-14	13824	60.0	32.8	49	48	3	75.3	1.71	16.6	S	54.5	.54	15.7	N-S	U	64.7	3	64.7	2-1/2	M	100	80	160	U-Q
II-58-57	13825	61.5	25.4	9	86	5	73.2	1.48	16.0	Q-S	55.2	.44	14.7	N-S	U	62.5	2	62.5	2-1/4	W	95	90 O	181	U
II-59-9	13826	59.5	33.9	38	56	6	74.6	1.44	16.4	S	58.9	.41	15.5	N	Q	64.4	3	64.4	3-1/4	M-S	95	90 IO	188	S
II-59-11	13827	61.5	32.3	27	68	5	74.1	1.51	16.1	S	56.3	.51	15.9	N-S	U	65.0	2	65.0	2	M	95	90 O	172	Q-U
B60-82	13823	61.0	27.5	5	88	7	72.9	1.40	15.5	Q	59.0	.40	14.7	N	Q	62.8	3	62.8	2-1/4	M	100	90	185	Q
B61-95	13586	61.0	29.1	7	87	6	73.1	1.44	15.6	Q-S	58.4	.41	14.8	N	Q	62.5	3	62.5	2-1/2	M	100	95 SlI	193	Q-S
60-54	13596	62.0	37.7	28	68	4	74.2	1.46	15.3	S	61.7	.38	14.6	N	S	62.8	3	62.8	2-3/4	M	110 C	95	169	S-Q
6-16-2	13588	62.0	32.3	16	80	4	73.6	1.58	16.5	S-Q	59.8	.46	15.8	N	Q	65.3	4	65.3	3-1/4	M-S	100	90 O	183	S

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

TABLE 14

1964 UNIFORM REGIONAL NURSERY SAMPLE AVERAGES

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pst. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
				Lg.	Med.	Sm.																		
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Crim	13465	59.2	28.7	29	66	5	74.2	1.77	15.6	S	60.5	.48	14.9	N	Q	65.0	5	65.0	4-1/2	M-S	110	89	186	S
Justin	13462	58.4	28.5	22	73	5	73.8	1.94	16.9	8	61.0	.46	16.3	N	S-Q	65.2	5	65.2	3-3/4	S-M	107	82	182	S
Lee	12488	58.6	28.4	19	75	6	73.7	1.76	15.4	S-Q	58.6	.51	14.7	N	Q-U	61.9	4	61.9	3-1/2	M-S	107	91	183	Q
Marquis	3641	55.2	21.0	6	74	20	72.3	1.99	15.1	U-Q	56.0	.55	14.4	N	U	60.7	3	60.7	3	M	107	91	172	Q-U
Pembina	13332	58.1	25.9	11	82	7	73.2	1.77	15.6	Q-S	59.7	.50	15.0	N	Q	62.1	6	62.1	4-1/2	S-M	108	87	189	Q-S
Selkirk	13100	56.8	27.9	15	78	7	73.4	1.82	15.5	Q	62.2	.48	15.0	N	S-Q	62.4	3	62.4	3	M	103	94	170	Q-S
Thatcher	10003	58.2	23.4	7	83	10	72.9	1.83	15.7	Q	59.9	.51	15.0	N	Q	61.1	3	61.1	2-3/4	M	110	92	176	Q
RL 4159	13775	59.4	25.4	14	80	6	73.4	1.80	16.5	Q-S	60.2	.50	15.5	N	Q	61.6	3	61.6	2-1/4	M	105	83	183	Q-U
ND 229-1	13589	58.3	27.4	27	66	7	74.0	1.77	15.7	S	59.9	.48	15.0	N	Q	63.1	5	63.1	5-1/4	M-S	105	89	180	S
ND 264	13569	59.9	30.2	23	70	7	73.8	1.84	16.3	S-Q	58.7	.50	14.9	N	Q-U	63.7	5	63.7	3-1/2	M-S	109	87	184	S-Q
ND 345	13653	60.8	29.3	28	67	5	74.2	1.72	16.2	S	60.4	.45	15.1	N	Q-S	63.5	6	63.5	4-3/4	M-S	110	85	185	S-Q
ND 363	13828	59.3	30.2	32	64	4	74.4	1.84	16.2	S	60.4	.47	15.4	N	Q-S	63.4	4	63.4	3-1/4	M-S	108	88	188	S-Q
ND 364	13829	58.1	25.6	12	81	7	73.3	1.85	16.5	Q-S	60.9	.45	15.8	N	Q-S	64.6	5	64.6	3-3/4	S	108	93	178	S
ND 373	13830	60.3	28.4	27	69	4	74.1	1.83	15.9	S	59.3	.46	15.4	N	Q	63.9	3	63.9	2-3/4	M-S	107	85	177	Q
ND 404	13778	60.7	28.4	27	68	5	74.1	1.82	16.0	S	58.7	.51	15.1	N	U-Q	63.1	5	63.1	4-1/4	M-S	108	92	185	S
ND 405	13779	58.0	32.5	31	65	4	74.4	1.82	16.4	S-Q	60.0	.47	15.6	N	Q	64.0	5	64.0	4-1/4	M-S	109	83	188	S-Q
ND 406	13780	62.6	32.4	43	53	4	75.0	1.71	15.6	S	54.6	.45	14.7	N-S	U	63.0	4	63.0	3	M-S	112	80	169	Q-U
II-53-525-1	13751	60.5	26.8	17	77	6	73.6	1.78	16.4	S-Q	60.2	.51	15.8	N	Q-U	63.4	3	63.4	2-1/2	M	111	85	180	Q
II-54-29	13654	61.7	29.9	17	77	6	73.6	1.69	15.4	S-Q	61.6	.41	14.9	N	S	62.4	8	62.4	6-3/4	M-S	113	84	172	Q
II-54-30	13655	62.2	28.2	12	82	6	73.3	1.69	15.2	Q-S	62.4	.41	14.7	N	S	61.4	4	61.4	3-1/4	M-S	109	81	179	Q-U
II-55-11	13773	61.9	33.5	40	57	3	74.8	1.76	15.9	S	61.2	.45	15.3	N	Q-S	63.6	5	63.6	3-3/4	M-S	113	86	192	Q-S
II-55-12	13774	61.8	35.7	42	54	4	75.0	1.75	15.9	S	61.2	.47	15.3	N	Q-S	63.5	4	63.5	3-1/2	M-S	111	89	191	S-Q
II-58-14	13824	59.2	32.8	50	48	2	75.4	1.80	15.8	S	56.8	.52	15.0	N-S	U-Q	64.6	4	64.6	3-1/2	M-S	104	87	173	Q-S
II-58-57	13825	59.6	24.2	12	80	8	73.1	1.76	15.7	Q	57.3	.51	14.9	N-S	U-Q	64.5	5	64.5	3-3/4	M-S	104	88	186	Q-S
II-59-9	13826	58.3	32.3	37	58	5	74.6	1.69	15.8	S	59.7	.48	15.0	N	Q	64.3	5	64.3	4-1/4	S-M	102	89	192	S-Q
II-59-11	13827	60.6	30.5	25	70	5	74.0	1.72	16.1	S-Q	57.7	.54	15.5	N-S	U-Q	64.4	4	64.4	3-1/4	M-S	103	91	184	S-Q
B60-82	13823	59.8	26.9	11	80	9	73.1	1.71	15.3	Q-S	58.5	.49	14.8	N	Q-U	62.4	4	62.4	3-1/4	M-S	105	93	184	S-Q
B61-95	13586	60.3	28.2	13	80	7	73.3	1.71	15.2	Q-S	58.3	.47	14.4	N	Q-U	62.3	4	62.3	3-1/2	M-S	102	87	193	Q-S
60-54	13596	60.0	33.1	26	68	6	74.1	1.73	15.5	S-Q	60.0	.48	14.7	N	Q	62.7	4	62.7	3	M-S	108	88	179	Q-S
6-16-2	13588	60.4	30.9	24	72	4	74.0	1.86	16.6	S-Q	60.3	.53	15.6	N	U-Q	65.0	5	65.0	4	M-S	106	89	186	S

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V-Very.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

TABLE 15

UNIFORM NURSERY STATE AVERAGES

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mix. Abs. 2/	Mix. Pat. 3/	Bake Abs. 2/	Mix. Time	Dough Char. 4/	Crumb Color	Crumb Grain	Lo Vo
				Lg.	Med.	Sm.														
		#/Bu.	g.	%	%	%	%	%	%	%	%	%	%		%	Min.				cc
Minnesota Stations																				
Crim	13465	59.3	30.4	29	66	5	74.2	1.86	16.4	58.9	.52	15.8	66.5	6	66.5	5	S-M	120	93	19
Justin	13462	58.3	27.6	21	72	7	73.7	1.98	17.5	60.7	.49	16.8	66.5	6	66.5	4-1/4	S-M	108	70	18
Lee	12488	59.0	28.5	16	78	6	73.6	1.80	16.0	57.9	.54	15.6	63.7	5	63.7	3-3/4	M-S	108	88	18
Pembina	13332	57.8	27.9	15	77	8	73.4	1.88	16.3	59.9	.53	16.0	62.9	4	62.9	3-1/2	M-S	103	93	18
Selkirk	13100	56.8	28.5	16	76	8	73.4	1.85	16.3	60.5	.51	15.4	63.0	4	63.0	2-3/4	M-S	103	93	16
Thatcher	10003	58.3	24.3	7	83	10	72.9	1.96	16.1	59.2	.55	15.9	61.1	4	61.1	2-3/4	M-S	113	95	18
Montana Stations																				
Crim	13465	58.0	24.6	13	80	7	73.3	1.72	16.2	61.3	.49	15.9	65.5	6	65.5	5	S-M	108	95	18
Justin	13462	57.5	25.4	10	83	7	73.2	1.85	17.0	61.5	.48	16.4	64.8	5	64.8	3-1/2	M-S	115	88	17
Lee	12488	58.3	26.0	12	82	6	73.4	1.70	16.3	60.9	.53	15.6	62.3	3	62.3	2-3/4	M-S	105	95	18
Pembina	13332	58.0	24.2	7	86	7	73.0	1.73	16.0	59.8	.49	15.2	62.9	5	62.9	3-3/4	S-M	113	90	18
Selkirk	13100	56.5	25.3	9	84	7	73.1	1.82	16.0	62.4	.46	15.6	62.7	3	62.7	2-3/4	M	103	100	16
Thatcher	10003	58.3	21.3	3	87	10	72.7	1.77	16.6	60.2	.50	15.7	61.3	3	61.3	2-1/2	M-S	118	85	17
North Dakota Stations																				
Crim	13465	59.8	26.7	26	70	4	74.1	1.79	15.0	61.1	.47	14.5	64.1	6	64.1	5-1/4	M-S	113	92	18
Justin	13462	59.2	29.5	26	71	3	74.2	1.92	16.6	60.5	.45	15.9	64.2	5	64.2	3-3/4	S-M	110	90	18
Lee	12488	58.2	26.1	15	77	8	73.4	1.79	14.5	58.2	.52	14.0	60.2	4	60.2	3-3/4	M-S	107	93	18
Pembina	13332	58.2	23.4	8	84	8	73.0	1.77	15.3	58.9	.48	14.7	61.2	7	61.2	5-1/2	S	110	80	19
Selkirk	13100	57.2	26.4	11	82	7	73.3	1.85	15.4	62.3	.46	15.1	61.8	3	61.8	3-1/4	M	107	93	17
Thatcher	10003	57.8	20.6	6	80	14	72.7	1.82	15.1	60.0	.48	14.4	60.2	4	60.2	3-1/4	M-S	110	90	17
South Dakota Stations																				
Crim	13465	59.5	28.8	26	70	4	74.1	1.80	16.5	61.0	.51	15.8	67.0	5	67.0	4-1/2	S	100	70	21
Justin	13462	58.0	26.6	11	83	6	73.3	2.02	17.6	60.4	.50	17.2	66.6	5	66.6	4-1/2	S	90	70	18
Lee	12488	58.0	27.9	8	85	7	73.1	1.85	15.5	58.5	.56	14.8	62.8	5	62.8	4-1/2	S	100	80	20
Pembina	13332	58.0	25.1	6	87	7	73.0	1.84	16.1	59.6	.55	15.6	63.5	6	63.5	5	M-S	100	90	19
Selkirk	13100	55.5	24.3	8	84	8	73.0	1.96	16.2	61.8	.53	16.0	64.2	4	64.2	3	M	100	95	17
Thatcher	10003	56.5	22.5	3	84	13	72.5	1.97	16.1	58.0	.55	15.5	61.9	3	61.9	3	M-S	105	90	18
Wisconsin Station																				
Crim	13465	59.5	34.6	63	35	2	76.1	1.83	13.0	62.1	.50	12.1	61.9	4	61.9	5	M-S	105	90	16
Justin	13462	60.0	32.6	41	56	3	74.9	2.19	15.2	63.4	.50	14.3	62.8	5	62.8	4-3/4	S	110	90	18
Lee	12488	59.0	35.1	54	43	3	75.6	1.85	13.6	61.1	.55	12.8	61.0	4	61.0	3-1/2	M-S	105	95	16
Pembina	13332	58.5	29.3	21	76	3	73.9	1.83	13.5	61.1	.53	12.7	58.7	10	58.7	6-1/4	M-S	100	95	18
Selkirk	13100	57.0	33.6	41	56	3	74.9	1.84	13.0	63.8	.50	12.2	61.0	3	61.0	3-3/4	M	100	95	17
Thatcher	10003	60.0	27.5	13	84	3	73.5	1.82	13.5	63.4	.55	12.5	60.3	4	60.3	3-3/4	M	110	100	16
Wyoming Station																				
Crim	13465	59.5	30.7	29	64	6	74.2	1.48	16.1	59.3	.40	14.9	65.3	3	65.3	2	M	105	95	18
Justin	13462	58.0	29.2	18	74	8	73.5	1.66	17.3	60.4	.37	16.4	66.6	4	66.6	2-1/2	S	95	90	18
Lee	12488	60.5	30.4	22	74	4	73.9	1.47	16.4	55.7	.38	15.5	62.3	2	62.3	1-1/2	M	110	90	17
Pembina	13332	59.5	27.9	12	82	6	73.3	1.51	15.9	60.6	.41	15.4	62.3	4	62.3	3-1/4	S	120	80	18
Selkirk	13100	58.5	31.2	17	75	8	73.5	1.54	15.7	64.0	.40	15.2	61.3	2	61.3	1-3/4	M	105	95	16
Thatcher	10003	60.5	27.7	14	80	6	73.4	1.54	16.4	59.2	.43	15.6	62.8	2	62.8	1-1/2	W	100	95	16
State Averages of the Six Varieties																				
Minnesota		58.3	27.9	17	75	8	73.5	1.89	16.4	59.5	.52	15.9	64.0	5	64.0	3-3/4	M-S	109	89	1
Montana		57.8	24.5	9	84	7	73.1	1.77	16.4	61.0	.49	15.7	63.3	4	63.3	3-1/2	S-M	110	92	1
North Dakota		58.4	25.5	15	77	8	73.5	1.82	15.3	60.2	.48	14.8	62.0	5	62.0	4	M-S	110	90	1
South Dakota		57.6	25.9	10	82	8	73.2	1.91	16.3	59.9	.53	15.8	64.3	5	64.3	4	M-S	99	83	1
Wisconsin		59.0	32.1	39	58	3	74.8	1.89	13.6	62.5	.52	12.8	61.0	5	61.0	4-1/2	M	105	94	1
Wyoming		59.4	29.5	19	75	6	73.6	1.53	16.3	59.9	.40	15.5	63.4	3	63.4	2	M-S	106	91	1
1964 Average 5/		58.2	27.2	18	75	7	73.6	1.86	15.6	60.6	.51	15.0	62.9	5	62.9	4	M-S	107	90	1
1963 Average 5/		56.6	27.8	27	65	8	74.0	1.80	15.1	62.7	.49	14.4	63.1	6	61.8	3-3/4	M	106	88	1

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ Refer to reference mixogram for numerical curve pattern.
4/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead.
5/ Averages obtained by using data for Minnesota, Montana, North Dakota, South Dakota and Wisconsin.

TABLE 16

SOUTH DAKOTA ADVANCED NURSERY SAMPLES

Highmore, South Dakota
H64 AWI Nursery

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
				Lg.	Med.	Sm.																		
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Pembina	13332	58.5	27.2	8	89	3	73.3	2.06	16.2	S-Q	58.9	.60	16.0	N	U	65.3	6	64.3	4-1/2	S	120	80 O	198	S
Lee	12488	60.0	30.6	21	78	1	74.0	2.00	15.7	S	57.8	.59	15.4	N	U	65.0	4	64.0	3-1/2	M-S	120	80 O	186	S
SD 621		59.0	33.1	20	77	3	73.9	2.04	15.5	S	44.4	.53	14.7	S	VU	63.8	2	62.8	1-3/4	M	120 S1C	90 O	175	Q-U
SD 622		61.0	35.5	39	58	3	74.8	2.06	17.3	S	50.0	.55	16.5	S	VU	65.3	3	64.3	2	M	120 BC	80 O	180	Q-U
SD 623		59.0	31.2	18	79	3	73.8	1.99	16.4	S	60.4	.61	16.2	N	U	66.3	3	65.3	1-3/4	M	90 DW	90 O	177	U
SD 624		58.5	31.6	19	78	3	73.8	2.10	16.5	S	63.4	.58	15.8	N	U	65.7	3	64.7	2	M	100	95	177	Q-U
SD 625		60.0	31.5	9	88	3	73.3	2.04	16.2	S-Q	61.8	.55	15.8	N	U	67.3	4	66.3	3	M	100	95	181	S
SD 626		59.5	32.9	26	70	4	74.1	2.05	16.4	S	62.4	.55	15.7	N	U	66.0	4	65.0	2	M	100 S1C	90	190	Q-U
SD 627		59.0	31.2	23	75	2	74.1	1.97	15.5	S	59.7	.60	15.1	N	U	65.3	5	64.3	3	M-S	95	95	174	S
SD 628		56.0	28.0	9	85	6	73.2	2.13	15.9	S-Q	61.3	.60	15.5	N-S	U	62.8	3	62.8	2-1/2	VW	95	95	164	U
II-53-525-1	13751	61.5	28.9	19	79	2	73.9	2.01	17.0	S	61.3	.58	16.6	N	U	66.0	4	65.0	2	M	105	90	188	Q-U
SD 6210		62.5	32.9	32	66	2	74.5	2.00	15.7	S	61.8	.50	14.8	N	Q	63.5	3	63.5	3	M-S	105	80	173	S-Q
SD 6211		60.0	32.4	26	72	4	74.1	2.06	16.5	S	61.8	.57	16.2	N	U	66.3	3	65.3	2	M	100	90	187	Q-U
SD 6212		62.0	33.2	24	73	3	74.1	2.11	16.0	S	55.1	.46	14.5	S	U	64.7	2	63.7	1-1/4	VW	95	90 T	161	U
SD 6213		61.5	29.9	13	83	4	73.5	2.02	16.1	S-Q	60.6	.55	15.0	N	U	64.2	3	63.2	2-1/4	W	95	95	176	U
SD 6214		61.0	31.7	19	77	4	73.8	2.06	16.1	S	55.1	.49	14.6	S	U	65.3	2	64.3	1-1/4	W	95	90	172	U
II-54-29	13654	62.5	31.7	16	81	3	73.7	1.86	15.8	S	61.7	.45	15.4	N	S	63.8	7	62.8	5-1/2	M-S	115 BC	95	184	S
SD 6327		59.0	35.2	33	66	1	74.6	2.11	17.1	S	62.0	.56	16.6	N	U	64.7	3	63.7	2-1/2	W	110	95	169	U
SD 6328		60.0	35.2	23	76	1	74.1	2.19	17.1	S	61.5	.54	16.5	N	U	65.3	2	64.3	1-1/2	VW	110 VCB	70 T	143	U
SD 6329		60.0	35.2	24	75	1	74.2	2.09	16.8	S	61.5	.53	16.4	N	U	66.0	2	65.0	1-1/4	VW	110 VCB	70 T	143	U
SD 6330		60.0	35.7	40	58	2	74.9	2.09	17.3	S	47.6	.58	15.9	S	VU	64.7	2	63.7	1-1/2	VW	120 VCB	70 T	153	U
SD 6331		59.0	33.6	22	77	1	74.1	2.04	17.8	S	56.5	.59	17.0	N	U	61.9	1	61.9	1	D	120 BC	70 T	147	U
SD 6332		61.0	36.2	45	53	2	75.2	2.08	15.8	S	52.4	.48	14.4	S	U	62.3	1	62.3	1-1/2	VW	120	95	172	U
SD 6333		62.5	36.1	49	49	2	75.4	1.98	16.2	S	53.2	.47	14.1	VS	U	61.9	1	61.9	1-1/4	VW	115	90	163	U
SD 6334		61.5	36.4	48	48	4	75.2	2.12	15.9	S	54.5	.47	14.0	VS	U	62.5	1	62.5	1	VW	110	90	158	U
SD 6335		62.0	36.2	49	49	2	75.4	2.01	16.0	S	54.5	.46	14.1	S	U	61.9	1	61.9	1-1/4	VW	120	80 T	160	U
SD 6336		61.5	31.7	13	83	4	73.5	2.10	15.6	S-Q	53.2	.46	13.7	S	U	61.9	2	61.9	1-1/2	W	110	95	173	U

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

TABLE 17

SOUTH DAKOTA ADVANCED NURSERY SAMPLES

Highmore, South Dakota
H64 AWII Nursery

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
				Lg.	Med.	Sm.																		
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Pembina	13332	59.0	27.2	7	88	5	73.1	2.03	16.6	Q	59.6	.60	15.1	N	U	66.0	6	65.0	4	S	110	90	190	S
Lee	12488	60.0	31.8	25	72	3	74.1	2.04	15.9	S	57.4	.68	15.3	N	U	64.7	4	63.7	3	M-S	110 W	90	184	S
SD 631		61.5	31.5	15	81	4	73.6	2.11	17.3	S-Q	47.3	.55	16.1	S	VU	65.0	2	64.0	1-1/2	M	120	85	170	U
SD 632		61.5	32.4	13	83	4	73.5	2.19	16.0	S-Q	55.4	.46	14.2	S	U	63.2	2	63.2	1-3/4	M	100 W	90	183	U-Q
SD 633		61.5	32.3	14	82	4	73.5	2.17	15.5	S-Q	54.5	.47	13.9	S	U	62.8	2	62.8	1-1/2	M	110 W	95	175	U
SD 634		59.0	33.0	18	78	4	73.7	2.13	17.2	S-Q	51.6	.55	15.6	S	U	62.8	2	62.8	1-3/4	W	115 BC	90 T	163	U
SD 635		61.5	33.2	30	68	2	74.4	2.13	16.2	S	55.1	.48	14.6	N-S	U	62.3	2	62.3	1-1/2	VW	110 S1C	90	172	U
SD 636		59.0	28.1	8	87	5	73.2	2.04	16.1	Q	60.1	.55	15.6	N	U	64.7	6	63.7	4	S	115 S1C	90 O	184	S
SD 6310		61.5	33.2	23	74	3	74.0	2.19	16.2	S	53.5	.67	14.8	S	U	65.3	2	64.3	1-3/4	VW	110 S1C	95 S1O	165	U
SD 6311		62.0	31.9	13	82	5	73.4	2.12	15.5	Q	53.5	.60	14.1	S	U	64.2	2	63.2	1-1/2	W	115 S1C	95	168	U
Lee	12488	59.5	30.7	17	80	3	73.7	1.99	15.4	S-Q	58.0	.54	14.9	N	U	65.3	5	64.3	3-1/2	S	115	80 OI	195	S
SD 6313		60.5	37.3	33	64	3	74.5	2.18	17.2	S	60.6	.50	16.2	N	Q	65.0	3	64.0	1-3/4	W	110	95	171	U
SD 6314		61.5	33.1	32	65	3	74.5	2.10	16.0	S	55.4	.45	14.7	S	U	63.2	2	63.2	1-1/4	VW	110	95	170	U
SD 6315		59.5	37.7	34	64	2	74.6	2.13	16.2	S	59.4	.47	15.1	N	Q	65.3	2	64.3	1-1/2	S1D	110 BC	90 T	148	U
SD 6316		60.0	33.3	15	82	3	73.6	2.10	16.5	S-Q	60.6	.53	16.0	N	U-Q	65.7	2	64.7	1-1/4	S1D	110	90 T	148	U
SD 6317		61.5	32.8	17	79	4	73.7	2.15	15.8	S-Q	55.4	.49	14.2	S	U	62.8	2	62.8	1-1/2	W	110 W	95	180	U
SD 6318		62.0	36.1	42	56	2	75.0	2.14	15.9	S	55.3	.50	14.8	S	U	63.5	2	63.5	1-1/2	W	110	90 I	175	U
SD 6319		62.0	36.0	41	57	2	75.0	2.11	16.1	S	55.4	.48	14.4	N-S	U	63.2	2	63.2	1-1/2	W	115	90	174	U
SD 6320		61.0	37.3	47	51	2	75.3	2.07	16.5	S	54.5	.60	14.9	N-S	U	62.5	1	62.5	1-1/4	D	110	80 T	155	U
SD 6321		62.0	33.0	23	74	3	74.0	2.13	15.9	S	54.3	.52	13.7	N-S	U	61.3	1	61.3	1	W	110	95	164	U
SD 6322		60.5	35.3	37	60	3	74.7	2.10	16.0	S	52.9	.48	15.7	S	U	65.3	2	64.3	1-1/2	W	105	100	162	U
SD 6323		61.5	34.8	23	75	2	74.0	2.12	16.0	S	51.1	.53	15.2	S	U	65.7	2	64.7	1-1/4	W	105	90	156	U
SD 6324		61.0	34.7	23	75	2	74.1	2.06	16.5	S	49.7	.52	15.6	S	U	65.7	2	64.7	1	W	100	90 T	153	U
SD 6325		61.0	36.8	27	70	3	74.2	2.06	16.5	S	52.1	.51	16.0	S	U	66.0	2	65.0	1	W	95	90 T	153	U
SD 6326		60.0	35.5	30	67	3	74.4	1.97	15.9	S	51.3	.47	14.1	S	U	63.8	2	62.8	1	M	110 BC	95	166	U

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

TABLE 18

ADVANCED NURSERY SAMPLES

Madison, Wisconsin

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
				Lg.	Med.	Sm.																		
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Henry	12265	59.4	31.9	25	74	1	74.2	1.84	12.7	S	71.2	.36	12.6	N	VS	61.9	5	59.9	3-1/2	M	110 SlC	95	865	S-Q
Justin	13462	59.5	30.0	36	64	0	74.8	1.96	15.9	S	68.7	.42	14.9	N	Q	65.7	6	63.7	4	S	90	100	835	S-Q
Lathrop	13457	59.9	32.5	36	63	1	74.8	1.83	12.6	S	71.9	.36	11.7	N	VS	58.7	5	57.7	3	M-W	95 SlC	90	855	U
Lee	12488	58.6	32.7	42	57	1	75.1	1.82	15.7	S	65.8	.43	14.7	N-S	Q	62.5	5	60.5	3	M	120	90	920	Q
Thatcher	10003	59.6	28.5	32	67	1	74.6	1.84	13.7	S	67.3	.44	12.7	N	Q-U	57.2	4	56.2	3	W	105 SlC	90	845	U
4-2-4-1		60.9	31.6	23	75	2	74.1	1.90	14.6	S	69.4	.35	13.2	N	VS	60.7	5	59.7	3	M-S	120 C	100	925	Q
Minn. II 53-525-1	13751	60.6	27.9	32	67	1	74.6	1.83	15.1	S	67.2	.50	14.1	N	U	60.7	3	59.7	2-1/2	M	110	95	855	U
Wisc. 255	13588	60.5	33.6	30	69	1	74.5	1.86	15.4	S	69.6	.44	13.8	N	Q	61.9	5	59.9	3-3/4	M-S	105 C	90 I	815	Q
H678-1-5		59.0	30.1	22	74	4	73.9	1.81	14.2	S	70.7	.34	13.4	N	VS	60.0	7	59.0	5	M-S	105	90	905	Q
H678-1-6		57.7	29.2	18	79	3	73.8	1.84	15.1	S-Q	69.5	.34	14.2	N	VS	63.8	8	61.8	5-3/4	M-S	110 C	95	840	S
H678-2-1		58.5	29.5	34	64	2	74.6	1.76	14.2	S	64.0	.38	12.7	VS	U	59.7	7	58.7	6	W	110	90 IO	920	U
H678-3-4		58.1	34.7	41	58	1	75.0	1.93	14.4	S	67.0	.36	12.9	VS	U	61.0	2	59.0	2-1/4	W	110 VC	80 T	805	U
H679-1-5		58.8	30.7	29	70	1	74.4	1.78	13.5	S	64.9	.48	12.1	VS	U	58.7	2	57.7	2	W	105	95	830	U

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ VS - Very Satisfactory, S - Satisfactory, Q - Questionable, U - Unsatisfactory.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

TABLE 19

SOUTH DAKOTA PRELIMINARY NURSERY SAMPLES

Brookings, South Dakota
B64 PWI Nursery

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Lee	12488	58.5	28.8	20	75	5	73.8	1.90	13.8	S	61.1	.45	13.5	N	Q-S	61.3	5	60.3	4	M	110	95	160	Q
Pembina	13332	56.0	24.1	7	85	8	73.0	1.94	14.3	Q	58.3	.53	13.7	N	U	61.0	10	60.0	5-3/4	M-S	105 C	90	157	Q
SD 6353		60.0	30.4	33	63	4	74.5	1.88	14.3	S	59.3	.49	13.2	N	U	61.9	6	60.9	4	M	105 S1C	90	160	Q
SD 6354		60.5	32.3	38	59	3	74.8	1.95	14.8	S	49.2	.51	13.6	S	VU	61.0	1	60.0	3/4	VW	100 S1C	50 T	126	U
SD 6355		60.5	35.6	45	52	3	75.1	1.98	15.0	S	48.1	.48	13.6	S	U	62.3	1	61.3	1	VW	105 S1C	50 T	135	U
SD 6356		57.5	33.7	43	54	3	75.0	2.03	14.6	S	60.1	.50	14.2	N	Q	61.9	2	60.9	1-3/4	W	105 S1C	90	148	U
SD 6358		59.0	34.6	32	65	3	74.5	2.08	14.1	S	49.2	.47	13.0	S	U	58.7	5	57.7	2-3/4	M-S	110 S1C	90 O	154	U-Q
SD 6359		60.5	32.7	38	58	4	74.7	2.02	14.9	S	55.2	.43	13.6	S	U	60.3	1	59.3	1-1/2	VW	105 S1C	70 T	140	U
SD 6360		59.0	30.9	24	72	4	74.0	1.95	14.5	S	48.6	.49	13.5	S	U	61.9	2	60.9	1-1/4	VW	105 C	90	154	U
SD 6365		60.0	32.7	43	53	4	75.0	1.86	13.4	S	50.8	.55	12.0	S	U	58.7	1	57.7	1-1/4	VW	110 C	90	141	U
SD 6366		60.0	31.4	23	72	5	73.9	2.09	15.2	S	50.6	.56	13.6	S	U	60.0	1	59.0	1	VW	105 S1C	50 T	130	U
SD 6367		59.5	36.1	39	58	3	74.8	1.96	15.4	S	49.4	.69	14.1	S	VU	62.5	1	61.5	1	VW	105 S1C	50 T	138	U
SD 6368		59.0	34.7	27	69	4	74.2	2.00	14.7	S	49.7	.63	13.1	S	VU	60.3	1	59.3	1	VW	105 S1C	50 T	138	U
SD 6369		60.0	32.8	24	72	4	74.0	1.96	15.0	S	49.4	.65	14.3	S	VU	60.7	1	59.7	1	VW	110 S1C	60 T	136	U
SD 6370		58.0	33.0	28	68	4	74.2	1.97	14.0	S	54.7	.49	13.0	S	U	60.7	5	59.7	4	M-S	110 C	90	169	Q
SD 6384		58.0	30.7	12	81	7	73.3	1.88	13.4	S	63.0	.54	12.1	N	Q-U	59.7	2	58.7	1-3/4	D	105 S1C	90 C	140	U
SD 6388		62.0	31.4	25	70	5	74.0	1.94	14.0	S	59.2	.49	13.0	S	U	60.3	1	59.3	1	D	110 S1C	90 T	140	U
SD 6389		62.5	37.3	48	49	3	75.3	1.89	15.0	S	58.3	.50	13.4	N-S	U	61.6	2	60.6	1-1/4	VW	110	90 IO	156	U
SD 6390		61.5	32.6	23	73	4	74.0	1.92	14.5	S	56.7	.52	13.2	N-S	U	61.0	1	60.0	1-1/4	VW	110 S1C	90 O	151	U
SD 6391		61.0	35.7	49	49	2	75.4	1.92	15.2	S	56.0	.54	13.7	N-S	U	61.6	2	60.6	1-3/4	W	110	90	160	U
SD 6392		60.0	32.9	30	66	4	74.3	1.92	15.2	S	46.7	.52	14.1	S	U	62.5	1	61.5	1	VW	110 S1C	90 T	150	U
SD 6393		59.0	31.6	21	75	4	73.9	1.91	15.0	S	51.6	.50	14.1	N-S	VU	63.2	2	62.2	1-1/4	VW	105 S1C	90 TO	158	U
SD 6394		60.0	33.0	32	64	4	74.4	1.85	13.9	S	54.1	.46	12.6	N-S	U	60.7	1	59.7	1	VW	105 S1C	80 T	150	U
Lee	12488	59.0	29.1	21	75	4	73.9	1.90	13.7	S	61.9	.50	13.1	N	Q	60.0	5	60.0	4	M-S	105	95	170	S-Q
Pembina	13332	54.5	24.4	7	85	8	73.0	1.89	14.0	Q	57.7	.61	13.3	N-S	U	58.7	10	58.0	5-1/2	M-S	100	90 I	178	Q
SD 6395		60.5	33.2	32	65	3	74.5	1.83	14.7	S	50.0	.59	13.4	N-S	VU	59.7	1	58.7	1	VW	105 S1C	70 T	135	U
SD 6398		62.0	35.8	49	48	3	75.3	1.87	14.5	S	56.4	.49	13.2	N-S	U	60.0	1	59.0	1-1/4	D	105 S1C	80 T	138	U
SD 6399		61.5	34.6	45	52	3	75.1	1.84	14.3	S	52.2	.50	13.1	S	VU	62.5	2	61.5	1-3/4	M	110	90 I	164	U-Q
SD 63100		62.0	35.2	39	58	3	74.3	1.94	14.5	S	57.8	.44	13.2	N-S	Q-U	62.5	2	61.5	1-1/4	M	95	80	163	U-Q
SD 63102		59.0	32.2	23	73	4	74.0	1.91	15.0	S	52.2	.50	14.0	S	VU	64.4	2	63.2	1-1/2	VW	105 S1C	80 OI	164	U
SD 63104		60.0	37.9	48	49	3	75.3	1.86	14.6	S	50.8	.50	13.1	S	U	61.9	1	60.9	1	VW	105 S1C	70 T	138	U
SD 63105		60.5	36.5	49	48	3	75.3	1.84	14.6	S	51.4	.50	13.1	S	U	62.5	1	61.5	1-1/4	D	100 S1C	80 T	150	U
SD 63108		59.0	34.1	44	54	2	75.1	1.81	14.7	S	63.0	.49	14.1	N	S	61.9	2	60.9	2	M	105	95	170	Q
SD 63110		61.5	31.2	30	67	3	74.4	1.87	15.1	S	57.8	.47	14.1	N-S	U	61.9	3	60.9	2-1/4	S	110 S1C	90 I	171	Q
SD 63111		59.0	33.2	39	58	3	74.8	1.84	14.0	S	63.9	.52	13.7	N	Q	62.3	3	61.3	2-1/4	M-S	110	95	172	Q
SD 63114		60.0	32.2	24	71	5	74.0	1.93	14.6	S	54.4	.48	13.4	S	U	61.9	3	60.9	2-1/4	M-S	110 S1C	90 OI	181	Q
Obreg. 12832		58.5	28.1	15	82	3	73.6	1.90	15.0	S	61.0	.51	14.5	N	Q	61.9	2	60.9	2	M-S	115	100	171	Q-U
12874		61.5	31.1	41	55	4	74.9	1.89	14.4	S	63.2	.53	12.4	N	Q-U	59.3	2	59.3	3	M-S	110 S1C	90 O	160	Q
12878		60.5	28.9	25	72	3	74.1	1.95	15.5	S	50.8	.53	14.2	S	VU	61.0	2	60.0	1-1/2	WD	110 S1C	90 IO	154	U
12896		60.5	29.3	29	67	4	74.3	1.78	13.9	S	51.7	.46	12.6	S	U	59.7	2	59.7	2	M	110 S1C	80 O	162	U

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

TABLE 20

SOUTH DAKOTA PRELIMINARY NURSERY SAMPLES

Brookings, South Dakota
B64 PWII Nursery

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Aba. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
B59 PWI 10		60.5	32.5	32	64	4	74.4	1.78	14.5	S	60.2	.44	13.5	N-S	Q-S	60.3	2	59.3	2-1/2	M-S	110 SlC	90 O	174	Q
B59 PWI 16		58.5	28.2	17	78	5	73.6	1.99	14.6	S	61.0	.51	14.0	N-S	Q-U	59.7	4	59.7	3-3/4	S	110	90 O	186	Q
B59 PWI 27		58.0	30.1	22	73	5	73.9	1.96	14.2	S	51.4	.51	13.4	S	U	61.0	4	60.0	3-1/2	M-S	110 SlC	95	177	Q-S
B59 PWI 44		60.0	30.3	17	79	4	73.7	1.94	15.3	S	54.1	.50	14.8	N-S	U	63.2	3	62.2	2-1/4	M	110 SlC	95	180	Q
B59 PWI 51		59.0	32.6	32	63	5	74.4	1.86	14.3	S	53.3	.54	13.5	N-S	U	61.3	4	60.3	3	M-S	105	95	181	Q-S
B59 PWI 73		59.0	31.7	30	67	3	74.4	1.87	14.7	S	53.0	.50	13.8	N-S	U	61.0	3	60.0	2-1/2	M	110 SlC	95	183	U-Q
B60 PWI 21		62.5	32.7	27	70	3	74.2	1.98	14.3	S	62.6	.46	13.5	N	S	61.0	6	60.0	5	M-S	120	90 IO	175	S-Q
B60 PWI 54		60.0	31.1	27	69	4	74.2	1.89	14.8	S	59.9	.50	14.2	N	Q	62.5	5	61.5	4	M-S	120 BC	90 O	181	S
B60 PWII CT 513		60.5	33.2	47	50	3	75.2	1.78	14.1	S	61.1	.48	13.6	N	Q-S	60.0	7	59.0	5-1/4	M	120 BC	100	164	Q-S
B60 PWII CT 514		58.5	33.2	41	55	4	75.0	1.87	14.8	S	60.6	.50	14.1	N	U-Q	60.3	6	59.3	5-1/4	M-S	110	95	176	Q-S
B60 PWII Obreg. 726		59.5	31.1	26	70	4	74.1	1.99	15.6	S	60.8	.53	15.0	N	U-Q	66.3	7	65.3	5	S	120	90 IO	201	S
B61 PWI Obreg. 698		59.0	29.2	17	77	6	73.6	2.04	14.8	S	59.9	.55	14.0	N	U	64.4	7	63.4	5-1/4	S	120 BC	80 O	188	S
B61 PWI Obreg. 769		59.0	30.5	32	65	3	74.5	2.00	13.8	S	59.7	.54	13.2	N	U	61.9	7	61.9	5-1/2	M-S	120 SlC	90	182	S
B61 PWII Obreg. 777		60.0	33.1	33	63	4	74.5	1.98	13.4	S	63.3	.49	12.7	N	S	59.7	3	59.7	3	M-S	120 SlC	90	181	Q-S
B61 PWII N 60-1096		60.0	31.3	27	69	4	74.2	1.87	14.4	S	61.0	.53	13.8	N	Q	62.5	5	62.5	4-1/4	M	120 SlC	90 O	184	S
B61 PWII N 60-1099		60.0	31.1	32	66	2	74.5	1.85	15.0	S	60.2	.58	14.1	N	U	64.2	6	63.2	4	M	110 SlC	90 O	190	S
B59 PWI 43		60.0	31.6	27	70	3	74.2	1.97	14.5	S	58.6	.53	13.8	N-S	U	62.5	2	62.5	2-1/4	D	110 BC	90 T	158	U

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

TABLE 21

PRELIMINARY YIELD NURSERY SAMPLES

Madison, Wisconsin

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Henry	12265	60.0	35.2	47	51	2	75.3	1.81	11.8	S	66.3	.44	11.0	N	S	58.3	4	58.3	3-1/2	M-S	110	90 OI	164	Q-U
H678-1-2-1		60.5	32.7	35	62	3	74.6	1.72	12.3	S	66.5	.46	11.4	N	S	60.3	5	60.3	5	M-S	105	95	167	S-Q
H678-1-4-5		59.0	33.2	31	66	3	74.4	1.78	12.9	S	64.7	.41	12.1	N	S	61.6	5	61.6	5-1/4	M-S	110 BC	90 OI	175	S
H678-1-5-4		59.5	31.5	22	76	2	74.0	1.83	12.6	S	64.1	.43	11.8	N	S	59.3	6	59.3	5-1/4	M-S	110	90 OI	181	Q-S
H678-1-6-4		57.5	33.7	52	47	1	75.6	1.79	12.4	S	62.5	.42	11.5	N	S	60.0	7	60.0	5-1/2	S	110	95	185	S-Q
H678-1-6-5		59.0	33.9	44	54	2	75.1	1.87	12.2	S	63.6	.43	11.5	N	S	59.3	8	59.3	6-1/2	S	105	95	170	Q-S
H678-3-3-2		57.5	38.5	58	40	2	75.8	1.77	12.2	S	54.9	.45	11.1	N-S	U	59.0	2	59.0	2-3/4	M	110 BC	90 C	161	U
H679-1-5-1		59.0	34.8	48	51	1	75.4	1.77	11.9	S	54.1	.44	10.8	N-S	U	58.7	2	58.7	2-3/4	M	110	95	166	U

1/ Clean dry - subtract 1#/bu. for docksge free T.W.
2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionsble, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Med.	Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
											Cutbank, Montana													
Chinook	13320	60.5	27.9	17	77	6	73.6	1.59	13.4	Q-S	61.5	.49	12.9	N	Q	61.6	3	60.6	2-1/4	W	100 W	95 S10	165	U
Cypress	13344	60.5	24.9	5	84	11	72.7	1.39	13.4	U	60.2	.45	12.5	N	Q-S	61.3	3	60.3	2-3/4	M	105	95	166	Q
Rescue	12435	60.0	25.4	6	82	12	72.7	1.43	13.1	Q	62.1	.53	12.0	N	U	57.5	2	56.5	2	W	105 S1C	95	160	U
Sawtana	13304	60.5	27.2	9	83	8	73.1	1.41	11.3	Q	63.0	.47	10.9	N	S	61.0	2	60.0	2	M-S	105 S1C	95	170	U
Thatcher	10003	58.5	24.7	7	76	17	72.5	1.44	11.5	U	62.1	.41	11.0	N	Q	58.7	2	57.0	1-3/4	W S1D	105	95 S10	169	U
B60-92	13591	61.5	27.0	8	84	8	73.0	1.28	11.8	Q	63.0	.46	11.1	N	S	60.3	3	59.3	2-1/2	M	110 S1C	90	169	U
60-7	13593	59.0	29.6	19	66	15	73.2	1.44	13.4	Q	63.7	.45	13.2	N	S	61.3	3	60.3	2-1/4	M-S	105 W	90 O	174	U-Q
60-9	13594	60.5	28.7	16	77	7	73.5	1.54	14.0	Q	60.4	.48	13.4	N	Q	63.2	3	62.2	2	M-S	100 W	100	179	U-Q
60-54	13596	60.0	32.8	26	60	14	73.6	1.43	12.3	S	63.5	.45	11.8	N	S	59.3	2	58.3	1-3/4	W S1D	100 W	95	170	U
5130-14	13598	61.5	26.3	3	88	9	72.7	1.47	11.4	Q	59.0	.39	11.0	N	U	63.2	4	62.2	3-1/4	S	100 W	95 S10	167	S
B61-69	13831	61.0	30.2	19	74	7	73.6	1.44	12.6	S-Q	62.4	.38	12.6	N	S	61.6	5	60.6	3-1/4	M	105 W	90	180	S
B61-23	13832	58.5	28.7	15	78	7	73.4	1.54	14.2	Q	59.3	.59	12.1	N	U	64.4	3	63.4	2	M	100	95 S10	178	U-Q
61-107	13937	59.5	35.0	30	59	11	74.0	1.46	13.0	S	60.4	.41	12.9	N	Q-S	60.7	2	59.7	1-1/2	D	105 W	95	167	U
Q254-28	13938	60.0	25.6	8	81	11	72.9	1.47	13.9	Q	60.4	.44	13.3	N	Q	62.8	3	61.8	2	M	105	95 S10	175	U
7532-4	13939	60.5	25.4	8	81	11	72.9	1.54	12.4	Q	63.0	.46	12.0	N	S	60.7	2	59.7	1-3/4	W	100 W	95	168	U
5422-45	13940	61.0	24.9	5	85	10	72.8	1.37	12.7	Q	59.9	.38	11.4	N	U-Q	63.5	4	62.5	2-1/2	M-S	105	95 S1I	171	Q-S
											Dutton, Montana													
Chinook	13320	61.5	33.6	32	61	7	74.3	1.65	13.1	S	63.6	.49	12.8	N	S-Q	61.0	3	60.0	2	M	110	95	162	U
Cypress	13344	61.0	28.4	9	87	4	73.3	1.62	12.7	Q	63.4	.45	12.3	N	S	60.3	5	59.3	3-1/2	M	100	90 O	170	Q
Rescue	12435	60.0	27.9	7	86	7	73.0	1.68	12.4	Q	63.9	.43	11.9	N	S	58.7	4	57.7	3	M-S	110 BC	95	169	Q
Sawtana	13304	61.0	29.9	11	82	7	73.2	1.62	12.2	Q	65.4	.44	11.9	N	S	59.3	3	58.3	2-1/4	M	100 C	95	163	U
Thatcher	10003	61.0	28.2	22	73	5	73.9	1.63	13.2	S-Q	62.6	.49	13.0	N	Q	61.3	4	60.3	2-1/4	M	100	95 S1I	170	Q-U
B60-92	13591	62.0	28.7	27	69	4	74.2	1.63	12.2	S	62.8	.44	11.0	N	S	58.7	3	57.7	2-1/4	M	110 S1C	100	170	U
60-7	13593	61.0	31.9	38	57	5	74.7	1.66	14.7	S	62.6	.42	12.8	N	S	60.3	4	59.3	3	D	110 BC	80 T	157	Q
60-9	13594	62.0	35.5	36	61	3	74.7	1.69	13.2	S	59.7	.43	12.6	N	Q-U	60.7	2	59.7	1-3/4	M	110 BC	100	170	U
60-54	13596	60.5	39.1	43	51	6	74.9	1.58	11.6	S	61.5	.41	11.1	N	S	58.3	2	57.3	2	M	105 S1C	100	168	U
5130-14	13598	62.0	29.7	8	86	6	73.1	1.59	12.4	Q	60.4	.46	11.5	N	Q	60.7	3	59.7	2-1/2	M	105 S1C	95	163	Q
B61-69	13831	62.0	33.0	23	72	5	73.9	1.60	12.7	S	63.4	.39	11.8	N	S	60.3	5	59.3	4	M-S	110 S1C	95 S1I	175	Q
B61-23	13832	60.5	34.2	19	77	4	73.8	1.71	13.4	S	59.5	.46	12.6	N	Q	63.5	3	62.5	2-1/4	M	100 W	95	171	Q
61-107	13937	60.0	37.2	41	55	4	74.0	1.55	13.2	S	59.4	.42	12.0	N	Q	60.3	3	59.3	2-1/2	W D	110 W	100	163	U
Q254-28	13938	62.0	28.2	11	83	6	73.3	1.62	12.9	Q	61.2	.44	12.2	N	Q	60.3	2	59.3	1-3/4	M	110 BC	95 S1I	170	U
7532-4	13939	61.5	30.3	18	75	7	73.6	1.67	12.8	S-Q	61.8	.42	12.4	N	Q-S	61.0	3	60.0	1-3/4	M	110 S1C	100	171	U
5422-45	13940	61.0	27.9	7	87	6	73.1	1.63	12.5	Q	61.7	.42	11.1	N	Q-S	60.3	4	59.3	3	W D	105 C	95 S1I	167	U
											Sidney, Montana													
Chinook	13320	58.5	26.7	7	87	6	73.1	1.64	15.6	S-Q	64.8	.43	15.5	N	S	64.2	4	62.2	3	M	105	100	167	S
Cypress	13344	58.0	22.9	1	85	14	72.4	1.70	16.2	Q	63.5	.47	15.9	N	S-Q	65.7	6	63.7	4	M-S	110 BC	95	179	S
Rescue	12435	58.0	23.3	2	88	10	72.6	1.77	15.2	Q	64.2	.46	15.0	N	S	62.5	6	60.5	3	M	105 VCB	95	172	Q
Sawtana	13304	58.0	21.5	1	83	16	72.3	1.75	15.6	Q	65.7	.47	15.4	N	S	63.5	6	61.5	3	M-S	105 VCB	90	176	S-Q
Thatcher	10003	60.0	23.5	4	89	7	72.9	1.63	15.3	Q-S	64.2	.45	15.0	N	S	63.2	5	61.2	2-3/4	M	110 BC	80 I	174	Q-U
B60-92	13591	59.0	21.4	1	81	18	72.2	1.79	15.5	Q	64.2	.48	15.3	N	S	64.7	6	62.7	3-1/2	M	105	80 O	194	S-Q
60-7	13593	59.5	26.1	15	79	6	73.5	1.71	16.0	S-Q	64.2	.43	15.9	N	S	63.5	6	61.5	3	M	110 BC	90	172	S-Q
60-9	13594	60.5	28.2	9	86	5	73.2	1.67	16.2	S-Q	61.5	.44	15.6	N	Q	63.5	3	61.5	2-1/4	M-W	120 BC	80	167	U
60-54	13596	59.5	31.6	13	83	4	73.5	1.75	15.6	S-Q	63.7	.44	15.3	N-S	S-Q	61.9	4	59.9	2-1/2	M	120 BC	90 O	182	U
5130-14	13598	59.0	23.1	1	83	16	72.3	1.76	15.4	Q	61.5	.51	14.9	N	U	64.7	6	62.7	3-1/4	M	105 BC	90	168	S
B61-69	13831	59.0	24.2	1	88	11	72.5	1.75	16.0	Q	63.5	.42	15.9	N	S	64.2	9	62.2	5	M-S	110 BC	75 O	185	Q
B61-23	13832	59.0	27.0	5	88	7	72.9	1.67	16.2	S-Q	61.6	.45	16.2	N-S	Q	65.7	5	63.7	3	M	105	70 OI	187	U-Q
61-107	13937	59.5	30.9	17	79	4	73.7	1.58	16.0	S	60.8	.45	16.0	N-S	Q	62.5	4	60.5	2-1/4	M-W	110 VCB	80	175	U
Q254-28	13938	58.5	21.0	1	81	18	72.2	1.78	16.6	Q	62.0	.47	16.5	N	Q	65.3	4	63.3	2-1/4	M	110 VCB	80	184	Q
7532-4	13939	58.5	21.1	2	80	18	72.2	1.82	16.2	Q	63.4	.46	15.7	N	S-Q	62.5	4	60.5	2-1/2	M-W	105 VCB	90 C	174	U
5422-45	13940	57.0	19.8	1	73	26	71.8	1.78	15.8	U-Q	62.6	.43	15.6	N	Q	63.8	7	61.8	3-3/4	M	105 VCB	95	174	S-Q

1/,2/,3/,4/,5/,6/,7/ and 8/ are the same as footnotes of other tables in the report.

II-53-525-1 13751 63.0 27.6 25 70 5 74.0 1.98 15.5 S 62.6 .50 14.8 N S-Q 61.0 2 61.0 2-1/4 M-S 110 W 90 O 189 Q

TABLE 23

SOUTH DAKOTA YIELD NURSERY SAMPLES

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Med.	Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Prc. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Brookings, South Dakota																								
Canthatch	13345	55.5	19.9	1	85	14	72.4	2.01	14.2	U	61.8	.53	13.5	N	Q	59.0	4	59.0	3-1/4	M-S	100 S1C	90	186	S-Q
Crim	13465	57.5	27.2	24	71	5	74.0	1.97	14.0	S-Q	62.0	.49	13.4	N	S	61.9	7	61.9	6-1/2	M-S	105 W	95	173	S
Justin	13462	56.5	24.7	9	85	6	73.2	2.12	16.2	Q	60.4	.51	15.7	N	Q	62.5	5	62.5	4	S	100	95 S10	179	S
Lee	12488	56.5	25.6	9	83	8	73.1	2.03	14.3	Q	60.6	.47	14.0	N	Q	60.3	5	60.3	4-1/2	M-S	110 W	90	181	Q-S
Pembina	13332	53.0	20.4	2	84	14	72.4	2.08	14.8	U	57.6	.54	14.3	N	U	61.6	8	61.6	6-1/2	M-S	105 BC	95	188	S
Rushmore	12273	57.5	24.0	6	86	8	72.9	2.14	14.1	S-Q	63.1	.48	13.5	N	S	59.7	5	59.7	4	M-S	110	90 0	185	Q
Selkirk	13100	53.5	24.1	6	85	9	72.9	2.16	14.8	U	61.3	.50	14.4	N	Q	61.6	4	61.6	3-1/4	M-S	105 S1C	90 T	179	S
Thatcher	10003	54.0	19.5	1	84	15	72.3	2.06	14.0	U	60.4	.53	13.4	N	Q	58.7	4	58.7	3-1/4	M-S	105 BC	95	183	Q-U
B61-95	13586	59.5	27.9	12	79	9	73.2	1.89	14.0	S-Q	57.1	.49	13.2	N	Q-U	59.7	5	59.7	4	M-S	110 W	90	188	Q
II-54-29	13654	61.0	28.7	18	76	6	73.6	1.88	14.1	S-Q	61.6	.42	13.5	N	S-Q	59.7	10	59.7	7	M-S	110	90 I	166	Q
II-54-30	13655	62.5	27.0	14	80	6	73.4	1.88	14.1	S-Q	63.1	.39	13.3	N	S	59.7	5	59.7	3-1/2	S	110	90	175	Q
II-53-525-1	13751	60.5	25.6	17	76	7	73.5	1.96	15.1	S-Q	60.4	.45	14.6	N	Q	61.3	3	61.3	2-1/2	M-S	105 W	95	181	Q
Centerville, South Dakota																								
Canthatch	13345	58.5	22.8	3	89	8	72.8	1.94	15.5	Q	61.0	.44	14.9	N	S-Q	60.7	3	60.7	2-1/4	M-S	100 S1C	90	185	Q
Crim	13465	59.5	28.0	25	71	4	74.1	1.85	15.9	S	60.1	.47	14.8	N	Q	63.8	4	63.8	4-1/4	M-S	100 W	95	182	S
Justin	13462	57.0	23.3	6	87	7	73.0	2.02	16.9	Q-S	58.1	.52	16.3	N	Q	65.3	7	65.3	5-1/2	S	100	90	185	S
Lee	12488	56.0	24.2	3	90	7	72.8	1.90	15.4	Q	58.5	.51	15.1	N	Q	64.2	6	64.2	5-1/2	M-S	105	100	175	S
Pembina	13332	56.0	22.3	2	90	8	72.7	1.89	16.2	Q	58.3	.52	15.6	N	Q	62.5	7	62.5	6	M-S	105 S1C	95	197	S
Rushmore	12273	59.0	25.3	6	88	6	73.0	1.97	15.6	S-Q	61.9	.49	15.1	N	S	61.3	4	61.3	3-3/4	M-S	110	95	188	S-Q
Selkirk	13100	56.0	27.5	11	83	6	73.3	1.97	15.9	S-Q	61.8	.52	15.8	N	Q	62.5	3	62.5	2-3/4	W	100	90 T	174	Q
Thatcher	10003	57.5	23.0	2	88	10	72.6	1.93	15.4	Q	60.6	.53	14.9	N	Q	61.0	3	61.0	2-1/2	M-S	105 S1C	90	188	Q
B61-95	13586	60.5	28.4	13	80	7	73.3	1.80	16.1	S-Q	56.7	.45	15.2	N-S	Q-U	61.9	5	61.9	3-1/2	M-S	115 W	80 0	210	S-Q
II-54-29	13654	61.0	28.2	11	83	6	73.3	1.82	16.1	Q	60.6	.40	15.5	N	S-Q	62.5	7	62.5	6	M-S	105 S1C	80	170	S-Q
II-54-30	13655	61.5	26.6	6	87	7	73.0	1.76	16.2	Q	61.3	.39	15.4	N	S-Q	61.9	5	61.9	3-3/4	M-S	115 BC	80	188	Q-S
II-53-525-1	13751	60.5	27.2	13	83	4	73.5	1.88	16.8	S-Q	60.4	.44	16.3	N	Q-S	64.2	3	64.2	2-3/4	M-S	110	80 0	208	Q
Cottonwood, South Dakota																								
Canthatch	13345	59.0	21.9	2	89	9	72.7	2.03	17.6	Q	57.3	.67	17.1	N	U	60.3	2	60.3	2	M-S	105 S1C	70 0	190	U
Crim	13465	59.5	27.7	15	80	5	73.5	1.94	17.9	S-Q	56.0	.66	16.9	N	U	63.2	3	63.2	2-1/2	M-S	100	90	187	S-Q
Justin	13462	58.5	25.1	4	88	8	72.8	1.98	17.5	Q	59.6	.55	16.6	N	U	62.5	4	62.5	3	S	100	80 0	188	S
Lee	12488	58.0	24.8	2	89	9	72.7	1.94	16.9	Q	58.3	.60	16.3	N	U	63.2	4	63.2	3-1/2	M-S	100 W	95	191	S
Pembina	13332	57.5	22.8	2	88	10	72.6	1.93	17.0	Q	58.7	.58	16.7	N	U	62.5	4	62.5	3-1/4	M	95 S1C	95 S10	192	S
Rushmore	12273	61.0	27.3	5	91	4	73.1	1.91	16.9	Q	57.3	.61	15.7	N	U	59.3	2	59.3	2-3/4	W	95	95	182	U
Selkirk	13100	57.0	25.3	1	90	9	72.6	2.04	17.6	Q	61.3	.57	17.0	N	U	62.3	2	62.3	2-1/2	W	100	90	182	U
Thatcher	10003	59.0	21.4	1	88	11	72.5	2.03	17.8	Q	57.8	.68	17.1	N	U	61.3	2	61.3	2-1/4	M	100	70 0	204	U
B61-95	13586	61.0	27.2	3	89	8	72.8	1.78	17.4	Q	58.5	.50	16.9	N	Q-U	61.0	3	61.0	3	M-S	100 W	90	203	S-Q
II-54-29	13654	61.5	27.7	4	90	6	72.9	1.80	16.7	Q	61.5	.47	16.2	N	S-Q	61.0	4	61.0	3-3/4	M-S	105 S1C	80 0	179	S-Q
II-54-30	13655	62.0	25.3	1	92	7	72.7	1.80	17.4	Q	62.4	.46	16.7	N	S	61.0	3	61.0	2-1/2	M-S	110 S1C	80 IO	187	Q
II-53-525-1	13751	60.0	23.8	1	90	9	72.6	1.92	18.0	Q	61.0	.56	17.4	N	U	63.2	2	63.2	2-1/4	M-S	100	80 0	187	Q
Eureka, South Dakota																								
Canthatch	13345	61.5	25.2	12	83	5	73.4	1.99	14.8	Q-S	62.7	.41	14.1	N	S	61.6	5	61.6	3-1/4	M-S	110	90 0	187	S
Crim	13465	62.0	32.2	45	50	5	75.0	1.91	14.5	S	62.1	.45	13.7	N	S	62.5	4	62.5	3-3/4	M-S	110 W	90	182	S
Justin	13462	60.0	29.0	27	65	8	74.0	2.08	15.6	S	61.9	.43	14.8	N	S	62.8	5	62.8	4-1/4	S	110	90	201	S
Lee	12488	60.5	27.7	13	83	4	73.5	1.93	15.0	S-Q	62.2	.40	14.6	N	S	61.6	8	61.6	6	M-S	110 W	90	193	S
Pembina	13332	59.5	24.4	7	84	9	72.9	1.96	14.9	Q	61.3	.46	14.4	N	S-Q	60.3	10	60.3	6-1/2	S	110	90 0	213	Q-S
Rushmore	12273	60.5	26.5	12	79	9	73.2	2.13	15.4	Q-S	64.7	.44	14.7	N	S	62.3	5	62.3	4-1/4	M-S	105	95	200	S
Selkirk	13100	58.0	27.6	15	76	9	73.3	2.12	15.5	Q-S	64.2	.47	15.0	N	S	62.5	4	62.5	3-1/2	M-S	110	90	179	S
Thatcher	10003	60.0	23.6	4	88	8	72.8	2.09	14.5	Q	63.3	.46	14.2	N	S	59.7	4	59.7	3	M-S	100	80 0	190	Q
B61-95	13586	62.5	30.4	18	73	9	73.5	1.89	14.1	S-Q	62.6	.48	13.5	N	S	61.0	4	61.0	3-1/4	M-S	110 W	95	187	S-Q
II-54-29	13654	63.5	29.7	18	74	8	73.5	1.88	14.1	S-Q	64.5	.45	13.5	N	S	60.3	6	60.3	5-3/4	M S1D	115 BC	95 C	147	U
II-54-30	13655	64.0	29.1	11	80	9	73.1	1.86	14.2	Q-S	65.3	.46	13.2	N	S	59.7	3	59.7	3	M-S	115	90 0	170	Q
II-53-525-I	13751	63.0	27.6	25	70	5	74.0	1.98	15.5	S	62.6	.50	14.8	N	S-Q	61.0	2	61.0	2-1/4	M-S	110 W	90 0	189	Q

SOUTH DAKOTA YIELD NURSERY SAMPLES (CONT'D.)

Table 23 - cont'd.

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Highmore, South Dakota																								
Canthatch	13345	61.0	26.5	9	86	5	73.2	2.17	16.3	Q-S	62.2	.54	15.9	N	Q	61.3	3	61.3	2-1/2	M-S	105	80 I	192	S-Q
Crim	13465	61.5	31.8	40	58	2	74.9	2.08	16.6	S	58.3	.55	15.9	N	Q-U	64.2	3	64.2	2-1/2	M-S	120 VW	90 O	203	Q
Justin	13462	61.0	29.6	14	83	3	73.6	2.14	16.8	S-Q	60.2	.49	16.3	N	S-Q	61.6	4	61.6	3-1/4	S	100 W	80 O	206	S
Lee	12488	60.0	30.2	18	80	2	73.8	2.03	15.8	S-Q	58.7	.55	15.4	N	Q-U	62.5	3	62.5	2-3/4	M-S	120 VW	80 O	175	S-Q
Pembina	13332	59.0	26.8	4	91	5	73.0	2.12	16.4	Q-S	60.4	.55	16.2	N	Q	62.5	6	62.5	4-1/2	S	105	90	202	S
Rushmore	12273	61.0	31.6	25	72	3	74.1	2.18	16.5	S	60,8	.62	16.0	N	U	61.6	3	61.6	2-3/4	M-S	110 VW	80 O	195	Q
Selkirk	13100	58.5	30.2	15	81	4	73.6	2.13	15.8	S-Q	62.8	.54	15.5	N	Q	63.2	3	63.2	3	M-S	110 W	90	183	S
Thatcher	10003	60.0	25.1	5	90	5	73.0	2.08	15.6	Q-S	60.6	.56	15.3	N	U	61.9	4	61.9	2-3/4	M-S	110 W	80 O	189	Q
B61-95	13586	61.5	29.3	14	81	5	73.5	2.00	16.5	S-Q	58.1	.48	15.8	N	Q	63.2	4	63.2	3-1/2	M-S	110 W	80 O	214	S
II-54-29	13654	62.5	30.6	11	85	4	73.4	1.96	16.1	Q-S	60.4	.44	15.7	N	Q-S	62.5	7	62.5	5-1/4	M-S	110 S1C	90	165	S
II-54-30	13655	63.5	28.7	6	90	4	73.1	1.93	16.0	Q-S	61.3	.44	15.3	N	S	64.2	4	64.2	3-1/2	M-S	110	90	172	S
II-53-525-1	13751	62.0	29.4	17	80	3	73.7	2.12	16.9	S-Q	58.7	.60	16.5	N	U	65.3	3	65.3	2-3/4	M	105 W	90	188	Q-S
Newell, South Dakota																								
Canthatch	13345	60.5	23.1	6	87	7	73.0	1.97	13.5	Q-S	61.9	.57	12.9	N	U	60.0	3	60.0	2-3/4	M-S	105	95	172	Q
Crim	13465	58.0	26.7	13	81	6	73.4	2.00	15.1	Q-S	60.7	.57	14.6	N	U	64.7	5	64.7	5	M-S	105	80	181	S
Justin	13462	60.0	27.5	7	86	7	73.0	2.04	13.3	Q-S	61.9	.50	13.0	N	Q	60.3	5	60.3	4-1/2	M-S	110	95	172	Q
Lee	12488	58.0	26.7	5	84	11	72.7	2.01	15.6	Q	59.6	.56	15.1	N	U	63.8	4	63.8	4	S	105	95	190	S
Pembina	13332	57.0	21.7	3	86	11	72.6	1.98	14.4	Q	58.5	.58	14.0	N	U	61.6	5	61.6	5	S	105 S1C	80	190	S
Rushmore	12273	60.0	24.4	5	85	10	72.8	2.09	15.9	Q	61.5	.56	15.2	N	U	61.3	3	61.3	3-1/4	S	100	90	193	S-Q
Selkirk	13100	57.0	27.0	7	82	11	72.8	2.11	14.5	Q	61.8	.58	14.2	N	U	61.0	2	61.0	2-3/4	M-S	100	95	179	Q
Thatcher	10003	59.5	22.7	3	86	11	72.6	1.97	14.2	Q	60.1	.56	13.6	N	U	59.7	2	59.7	2-1/2	M-S	100	90	180	Q-U
B61-95	13586	62.0	28.7	11	83	6	73.3	1.84	12.0	Q-S	58.1	.53	11.2	N	Q-U	58.3	2	58.3	2-1/2	M S1D	110 W	90 C	170	U-Q
II-54-29	13654	62.0	26.0	6	85	9	72.9	1.93	13.5	Q	61.9	.49	13.0	N	S	60.3	6	60.3	6	M-S	110 S1C	90 I	172	Q
II-54-30	13655	61.0	26.2	2	82	16	72.3	1.98	15.0	Q	61.8	.52	14.3	N	Q	61.6	3	61.6	3-1/4	M-S	110 C	90 O	179	S
II-53-525-1	13751	59.0	22.2	2	83	15	72.4	2.03	15.9	Q	59.9	.59	15.6	N	U	63.8	4	63.8	3	S	95	90	190	S
Watertown, South Dakota																								
Canthatch	13345	54.5	18.8	2	80	18	72.2	1.97	15.9	U	59.4	.56	15.6	N	U	61.9	3	61.9	3-1/4	M-S	115 S1C	70 O	193	Q-U
Crim	13465	56.0	24.2	9	83	8	73.1	1.89	15.9	Q	59.8	.54	15.4	N	Q-U	64.7	4	64.7	6-3/4	M-S	105	90 O	202	S
Justin	13462	55.0	24.1	4	85	11	72.7	2.09	17.8	Q-U	59.4	.51	17.0	N	Q-U	64.7	4	64.7	4-1/4	S	100 S1C	80 T	188	S
Lee	12488	54.5	23.9	1	83	16	72.3	1.96	14.2	Q-U	57.3	.54	13.7	N	U	61.0	5	61.0	5	M-S	100	95	184	S-Q
Pembina	13332	53.5	21.2	2	85	13	72.5	1.95	16.0	U	57.1	.54	15.6	N	U-Q	63.8	7	63.8	7	M-S	100 S1C	80	201	S
Rushmore	12273	57.5	24.8	6	86	8	72.9	1.96	15.8	Q	61.0	.51	15.0	N	Q	61.6	5	61.6	4-1/2	M-S	110	70 O	200	Q-U
Selkirk	13100	52.0	24.9	5	83	12	72.7	2.00	16.4	U	60.6	.55	16.3	N	U	65.0	4	65.0	3-1/2	W	115 S1C	80 T	178	U-Q
Thatcher	10003	53.0	17.9	1	78	21	72.0	2.04	15.6	U-Q	57.6	.59	15.1	N	U	61.9	4	61.9	3	M-S	120 BC	90	196	S
B61-95	13586	56.5	25.2	1	84	15	72.3	1.79	15.8	Q	56.0	.51	15.1	N	Q-U	61.6	4	61.6	3-3/4	M-S	110	80 O	194	S
II-54-29	13654	59.5	26.6	6	84	10	72.8	1.78	15.8	Q	59.2	.44	15.3	N	Q	63.2	8	63.2	9	S	105 S1C	70 IO	171	U
II-54-30	13655	61.0	26.0	3	88	9	72.7	1.75	15.5	Q	61.9	.43	15.0	N	S	61.6	4	61.6	4	S	110 S1C	90	192	S
II-53-525-1	13751	58.5	23.7	5	84	11	72.7	1.87	16.7	Q	59.6	.60	16.5	N	U	62.5	3	62.5	2-3/4	S	110	80 OI	182	Q-S

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

TABLE 24

SPECIAL SERIES

Blend of Brookings, Highmore and Watertown, South Dakota

Variety	T.W. 1/	1000 Kwt.	Lg.K.	Md.K.	Sm.K.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
	#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Rushmore (Check)	60.0	32.5	47	51	2	75.3	1.85	14.1	S	66.2	.46	13.6	N	S	62.5	5	62.5	4-1/2	M	100W	90	158	Q-S
Lee x B6-2145	61.9	36.1	54	44	2	75.6	1.66	13.9	S	61.7	.42	13.2	N	S	65.0	5	64.0	4-1/2	M-S	100W	90	162	S
Flo.x B7-2171	59.8	36.8	60	38	2	75.9	1.61	13.6	S	50.7	.42	12.7	S	U	61.6	2	60.6	2-1/2	W	110W	90	165	Q-U
RH 1935xW250-2182	61.9	40.0	67	32	1	76.3	1.67	14.5	S	64.6	.42	14.1	N	S	65.3	4	64.3	3	W-M	100	800	162	Q
RH 1935xW250-2191	60.1	34.6	54	44	2	75.6	1.73	15.4	S	63.6	.40	14.2	N	Q	64.2	3	63.2	2-3/4	M-W	100	800	167	Q
RH 1935xW250-2194	60.2	36.8	49	48	3	75.3	1.73	14.4	S	63.2	.45	13.8	N	Q	65.3	4	64.3	3-1/4	M-W	100	800	160	Q-S
TT 630xW250-2196	63.0	36.6	61	38	1	76.0	1.85	13.7	S	62.0	.38	12.6	N-S	U-Q	62.5	3	61.5	2-1/4	M	100	800	157	U
TT 630xW250-2207	61.2	32.6	44	54	2	75.1	1.70	13.4	S	62.5	.43	12.4	N-S	Q-U	61.9	4	60.9	3-3/4	W-M	100	800	156	Q
TT 630xW250-2208	62.6	35.0	56	42	2	75.7	1.63	13.7	S	59.6	.39	12.9	S	U	62.5	3	61.5	2-1/4	W-M	110W	800I	155	U
Lee x W250-2118	60.8	36.4	54	44	2	75.6	1.67	14.8	S	64.1	.38	14.2	N	S	65.3	4	64.3	3-1/2	M	110W	80IO	170	Q-S
Rush.xW250-2228	62.1	37.2	63	35	2	76.1	1.70	13.8	S	64.3	.40	13.2	N	S	61.9	5	60.9	4-1/2	M-W	110	800	151	Q
RH 1935 x W250-2251	60.8	32.7	44	54	2	75.1	1.79	15.5	S	63.5	.45	15.0	N	Q	66.3	5	65.3	3-3/4	M	110W	800I	165	S-Q
Ruah x B12-2262	62.6	33.6	58	40	2	75.8	1.66	13.8	S	51.0	.39	12.7	VS	U	60.7	5	59.7	4	M	110W	900	145	Q
Rush x B12-2266	62.8	32.5	46	52	2	75.2	1.70	13.4	S	60.7	.41	12.8	N	U	62.5	6	61.5	5-1/4	M	110VW	90I	148	Q
Rush x B13-2292	60.9	31.6	50	48	2	75.4	1.84	13.8	S	63.9	.45	13.2	N	Q-S	61.9	4	60.9	4	M	90DW	90I	155	Q
Rush x B3-2304	58.8	31.8	52	46	2	75.5	1.79	14.5	S	62.7	.49	13.9	N	U-Q	63.2	5	62.2	4-1/2	M	90DW	90I	170	S-Q
Rush x B1-2353	59.7	36.1	63	34	3	76.0	1.68	14.1	S	53.4	.40	13.5	S	U	62.8	2	61.8	2	W	90DW	90	160	U
Reward x B-1-2396	61.0	33.8	64	34	2	76.1	1.76	13.8	S	47.8	.43	13.5	VS	U	64.2	2	63.2	2-1/4	VW	100W	90	159	U
Reward x B1-2399	60.7	33.7	52	46	2	75.5	1.76	14.0	S	60.1	.46	13.7	N-S	U	65.0	3	64.0	2-1/2	VW	100W	80C	159	U
Lee x B13-2414	60.0	33.9	51	47	2	75.5	1.63	12.7	S	60.8	.50	11.8	N	U	61.3	5	60.3	4-1/2	M	100W	80C	151	Q
Lee x B13-2417	60.8	34.8	52	46	2	75.5	1.70	13.4	S	58.9	.49	12.9	N-S	U	62.8	5	61.8	4-1/4	M	100BW	80C	159	Q
Lee x B13-2419	60.0	33.0	55	42	3	75.6	1.71	13.4	S	48.8	.52	12.7	VS	U	62.5	6	61.5	4-1/4	M	120BW	90	158	Q-S
Lee x B13-2423	61.2	34.5	57	41	2	75.8	1.70	13.6	S	43.5	.49	12.3	VS	U	60.3	6	59.3	4-1/4	M	110BW	80C	154	Q
Lee (Check)	61.2	33.3	62	36	2	76.0	1.64	14.1	S	55.9	.48	13.7	S	U	63.2	4	62.2	4	M	110BW	80C	156	Q
Spink. x Lee-2505	62.3	33.3	50	48	2	75.4	1.66	14.9	S	44.9	.52	13.8	VS	U	61.0	3	60.0	3	M	110W	80C	169	Q
Prog. x Selk.-2520	60.7	36.0	60	39	1	76.0	1.70	14.7	S	54.8	.54	13.9	S	U	64.4	4	63.4	3-1/2	M	100VW	900	160	S
2854 x Selk-2573	60.2	32.6	52	46	2	75.5	1.76	14.8	S	58.9	.52	14.4	S	U	65.3	3	64.3	2	VW	100W	900	164	U
RH 1935 x 2854-2614	60.2	35.5	22	76	2	74.0	1.77	15.2	S	45.9	.50	14.2	VS	VU	60.7	2	59.7	1-1/4	W	90DW	900	153	VU
RH1935 x Selk.-2626	60.4	35.5	56	42	2	75.7	1.64	13.9	S	55.2	.49	13.2	S	U	66.0	4	65.0	2	VW	100VW	90C	152	U
Lee x RH 1935-2641	61.9	32.6	50	48	2	75.4	1.72	15.2	S	58.3	.48	14.7	S	U	65.7	3	64.7	2	VW	100W	90	161	U
Lee x RH 1935-2665	61.4	34.1	50	48	2	75.4	1.70	14.9	S	58.1	.49	14.5	S	U	66.0	5	65.0	3	M	110VW	90	170	S
Lee x RH 1935-2666	61.4	32.5	45	53	2	75.2	1.69	14.8	S	57.6	.52	14.5	S	U	65.7	3	64.7	2	WM	100W	800	168	U
Lee x Selk.-2680	60.0	35.6	43	55	2	75.1	1.69	14.0	S	60.3	.48	13.4	N-S	U	62.3	3	61.3	3-1/2	M	100VW	90	154	S-Q
Lee x Selk.-2692	60.3	34.4	52	46	2	75.5	1.71	12.9	S	62.4	.51	12.5	N	U	60.0	6	59.0	5-1/2	M	105	80	149	Q
Selk-B8-2734	58.9	33.7	55	43	2	75.7	1.77	14.5	S	45.2	.53	13.8	S	U	62.5	2	61.5	2	M-W	105	700	156	U
PW 36 x Selk.-2773	61.4	38.2	62	36	2	76.0	1.79	14.7	S	61.6	.49	14.3	N-S	U	66.0	3	65.0	1-1/2	VW	105	700	137	U
PW 36 x Selk.-2783	62.2	35.1	40	58	2	74.9	1.77	14.7	S	59.8	.47	14.0	S	U	63.2	2	62.2	1-1/2	W	105	700	152	U
PW 36 x Selk.-2784	62.1	38.3	59	40	1	75.9	1.77	14.2	S	61.9	.52	13.7	N-S	U	62.5	2	61.5	2	W-M	110	90	155	U
PW 36 x Selk.-2801	60.4	39.1	57	41	2	75.8	1.82	14.1	S	54.1	.52	13.3	S	U	64.2	3	63.2	2	VW	100	80	143	U
PW 36 x Selk.-2802	60.7	35.1	59	39	1	75.9	1.73	14.9	S	57.6	.49	14.3	S	U	64.4	4	63.4	3	M	100VW	95	163	S
PW 36 x Selk.-2814	62.7	38.6	57	42	1	75.8	1.82	13.6	S	64.6	.44	13.0	N	S	61.6	2	60.6	2	W-M	110	90	153	U
PW 36 x Selk.-2819	61.5	35.6	53	45	2	75.6	1.70	14.1	S	53.1	.49	12.9	S	U	63.2	2	62.2	1-1/2	VW	110	90	152	U
PW 36 x Selk.-2824	60.1	37.7	59	38	3	75.8	1.71	13.9	S	54.1	.48	12.9	S	U	61.9	3	60.9	2-1/2	W	110	90	158	U
Rush. x B15-2482	60.8	35.3	54	44	2	75.6	1.75	14.5	S	48.1	.49	13.4	VS	U	61.3	3	60.3	2-3/4	M	100BW	90I	170	Q
PW 36 x Selk.-2851	59.1	31.1	28	69	3	74.3	1.96	14.9	S	46.2	.47	13.8	VS	U	59.7	2	58.7	1-3/4	M-W	110	90	161	U
Rush.^{2} x K338-847	60.0	34.5	53	45	2	75.6	1.80	14.5	S	46.4	.50	13.5	VS	U	61.6	2	60.6	2	VW	100W	80T	150	U
Ruah.^{2} x K338-848	59.6	35.7	56	42	2	75.7	1.82	14.9	S	54.8	.55	14.3	S	U	64.2	4	63.2	2-3/4	W	110	80T	151	U-Q
Rushmore (Check)	59.3	31.2	42	55	3	75.0	1.79	14.0	S	61.0	.51	13.7	N-S	U	62.8	5	61.8	4	M-S	110	80	165	S
Kenya B286 x Selk.-857	62.2	32.3	38	60	2	74.8	1.76	13.4	S	60.5	.48	12.9	N-S	U	64.7	4	63.7	2-1/2	M-W	110BW	80	153	U
Kenya B286 x Selk.-870	63.0	32.4	35	64	1	74.7	1.80	13.8	S	55.2	.55	13.4	S-N	U	64.2	7	63.2	4-1/2	M	110	90	147	Q

1/ Clean Dry - Subtract 1#/bu. for dockage free T.W.
2/ 14% Moisture Basis.
3/ VS - Very Satisfactory, S - Satisfactory, Q - Questionable, U - Unsatisfactory.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick wall, Sl - Slightly, C - Close.

SPECIAL SERIES

Blend of Brookings, Highmore and Watertown South Dakota

(Continued)

Table 24 - cont'd.

Variety	T.W. 1/	1000 Kwt.	Lg.K.	Md.K.	Sm.K.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
	#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Selk.xTT630-892	62.0	35.2	51	47	2	75.5	1.73	15.0	S	51.7	.50	14.4	S	U	63.8	3	62.8	2	M	100W	95	166	Q
Selk. x Lee-990	59.6	38.0	60	37	3	75.9	1.74	13.7	S	63.3	.51	13.5	N	U	64.2	4	63.2	3-1/4	M-W	100W	90	151	Q-S
Lee (Check)	61.2	33.3	57	41	2	75.8	1.72	14.5	S	61.4	.50	14.2	N-S	U	64.2	4	63.2	3-1/2	M	90DW	900	168	S-Q
Selk. x PW36-938	62.7	34.5	52	46	2	75.5	1.68	13.0	S	57.2	.48	12.0	S	U	61.6	2	60.6	1-1/2	W	100	80	152	U
Selk.xPW36-945	61.2	39.8	64	34	2	76.1	1.81	14.1	S	61.4	.51	13.4	N-S	U	61 3	3	60.3	2	W	95W	90	161	U
Selk. x RH1935-976	61.7	34.4	39	59	2	74.9	1.68	14.3	S	52.4	.50	14.1	S	U	66.3	4	65.3	2-1/4	M-W	100	90	164	U
Selk.x RH 1935-980	61.6	38.3	60	38	2	75.9	1.76	13.7	S	55.2	.53	13.3	S	U	64.7	3	63.7	2-1/2	M-W	100W	80	155	U
Selk.x RH 1935-986	61.7	36.1	48	50	2	75.3	1.82	13.9	S	55.5	.54	13.4	S	U	64.2	4	63.2	2-1/4	M-W	100W	95	161	Q
Selk.xRH 1935-999	62.6	34.8	57	41	2	75.8	1.70	13.3	S	59.0	.51	12.5	N	U	63.8	4	62.8	2-1/4	M-W	100W	90	148	U
2854 x RH 1935-898	61.8	32.5	29	68	3	74.3	17.3	14.0	S	61.4	.49	13.4	N	Q-U	61.6	2	60.6	1-1/4	VW	90DW	800I	165	U
2854 x RH 1935-901	62.3	33.6	22	76	2	74.0	1.73	14.8	S	61.6	.41	14.0	N	Q	60.3	2	59.3	1-1/4	VW	100W	90	156	U
2854 x RH 1935-907	61.5	36.5	50	48	2	75.4	1.71	14.2	S	54.3	.43	14.0	S	U	62.8	2	61.8	1-1/2	W-M	100BC	90	168	U
2854 x RH 1935-909	61.9	35.1	37	61	2	74.8	1.71	14.4	S	44.0	.39	13.4	VS	U	60.3	2	59.3	1-1/4	W	100W	800I	168	U
2854 x RH 1935-911	61.7	34.2	32	66	2	74.5	1.78	14.5	S	52.9	.46	13.9	S	U	61.9	2	60.9	1-1/4	VW	100W	800	155	U
2854 x RH 1935-921	61.3	33.3	27	69	4	74.2	1.77	13.0	S	46.4	.39	11.9	VS	U	57.2	3	56.2	1-3/4	W	95W	90	163	U
2854 x RH 1935-923	59.4	34.0	46	52	2	75.2	1.78	14.6	S	59.4	.46	14.0	N-S	U	62.8	2	61.8	1-1/4	W-M	95W	90	172	U
Flo. x C.I.7905-1259	61.7	35.3	31	66	3	74.4	1.61	13.1	S	61.2	.43	12.6	N	Q	60.3	2	59.3	2-1/4	M-W	100W	90	157	U
Flo. x C.I.7905-1268	61.0	34.2	32	64	4	74.4	1.77	13.5	S	64.0	.38	13.1	N	S	60.3	4	59.3	3	M	100W	90	158	S
Flo. x C.I.7905-1991	61.0	34.3	54	54	2	75.6	1.88	15.4	S	48.3	.46	15.0	VS	U	65.7	3	64.7	2	W	100W	800I	162	U
Flo. x C.I.7905-1994	61.5	33.2	45	52	3	75.1	1.73	13.8	S	53.3	.48	13.3	S	U	61.6	3	60.6	2-1/2	M-W	100W	800I	166	U
(1953-Lee)x13212-2007	62.3	36.5	60	38	2	75.9	1.74	14.0	S	57.6	.42	14.1	S	U	62.5	2	61.5	2	M-W	95W	90	164	U
(1953-Lee)x13212-2009	61.7	32.2	45	52	3	75.1	1.73	12.7	S	49.0	.42	12.1	VS	U	58.1	3	57.1	2-3/4	M	95W	95	160	Q
(1953-Lee)x13212-2014	60.3	33.4	42	54	4	74.9	1.75	12.1	S	51.2	.40	11.2	S	U	57.8	2	56.8	2-1/2	M-W	100W	800	154	U
(1953-Lee)x13212-2017	62.8	37.2	62	36	2	76.0	1.74	12.9	S	54.5	.41	12.3	S	U	61.3	3	60.3	2-1/4	M-W	100W	80C	155	U
(1953-Lee)x13212-2018	59.4	32.5	30	64	6	74.2	2.01	14.6	S	54.8	.49	14.1	S	U	61.0	3	60.0	2-3/4	M-W	100W	90	161	Q
(1953-Lee) x13212-2027	59.5	37.2	51	46	3	75.4	1.73	12.8	S	52.6	.44	12.4	S	U	58.7	2	56.7	1-3/4	M-W	100W	70C	140	U
(1953-Lee)x13212-2034	64.5	40.3	66	31	3	76.2	1.71	13.0	S	61.9	.40	12.8	N	Q	62.5	3	60.5	2-1/2	M-W	110W	80C	149	U
(1953-Lee)x13212-2035	59.6	34.2	39	57	4	74.8	1.72	14.0	S	49.3	.40	12.5	VS	U	58.7	2	56.7	2-1/4	W	100W	70C	145	U
(1953-Lee)x13212-2031	61.6	37.9	58	40	2	75.8	1.73	13.2	S	60.2	.41	12.8	N-S	U	59.0	2	57.0	2-1/4	M-W	110W	70C	146	U
(1953-Lee)x13212-2033	61.2	38.0	62	36	2	76.0	1.73	12.4	S	61.4	.41	11.8	N	Q	61.3	3	59.3	2-1/2	W	110W	70C	140	U
(1953-Lee)x13212-2045	61.2	35.6	49	49	2	75.4	1.65	13.4	S	60.2	.43	13.2	N	Q	61.0	3	60.0	2-3/4	W	100W	90C	154	U
(1953-Lee)x13212-2046	62.7	31.4	34	63	3	74.6	1.71	13.2	S	60.7	.43	12.7	N	Q	58.7	4	57.7	3	W-M	100W	90C	154	Q
(1953-Lee)x13212-2048	61.2	37.3	64	34	2	76.1	1.76	13.9	S	50.0	.47	13.5	S	U	60.3	2	59.3	1-3/4	W	100W	90C	154	U
(Leex1831)x 13212-2054	61.8	36.5	61	36	3	75.9	1.72	14.3	S	55.9	.52	13.9	S-N	U	64.4	3	63.4	1-1/2	VW	100	90C	155	U
(Leex1831)x13212-2055	61.1	40.5	71	27	2	76.5	1.69	13.9	S	45.3	.46	13.2	VS	U	61.6	2	60.6	1-1/2	VW	100W	80	153	U
(Lee x 1831)x13212-2060	61.2	38.5	70	28	2	76.4	1.65	13.9	S	45.0	.48	13.9	VS	U	64.2	3	63.2	1-1/2	VW	100	90	164	U
(Leex1831)x13212-2064	62.1	37.9	66	31	3	76.2	1.74	14.4	S	55.0	.50	13.9	S-N	U	62.8	3	61.8	2	VW	100	90	160	U
(Leex1831)x13212-2069	61.7	39.5	67	30	3	76.2	1.64	12.5	S	58.5	.49	12.2	N-S	U	61.9	3	60.9	2-1/2	VW	110W	90	150	U
(Leex1831)x13212-2073	62.4	38.8	68	30	2	76.3	1.73	13.7	S	43.8	.46	13.2	VS	U	60.3	2	59.3	1-3/4	VW	100W	90	159	U
(Leex1831)x13212-2080	62.5	41.2	70	28	2	76.4	1.68	11.7	S	58.5	.51	11.4	N-S	U	61.0	2	60.0	2-1/4	VW	110	80C	137	U
(Leex1831)x13212-2082	60.0	39.1	64	33	3	76.1	1.70	12.8	S	48.8	.51	12.3	VS	U	61.9	2	60.9	1-3/4	VW	100	70T	148	U
(Leex1831)x13212-2084	60.7	38.0	67	31	2	76.3	1.73	11.9	S	54.3	.50	11.5	S	U	60.3	3	59.3	2-3/4	W	100W	80C	143	U
(Leex1831)x13212-2086	60.7	40.2	70	28	2	76.4	1.75	12.7	S	50.2	.47	12.3	S	U	59.3	2	58.3	1-1/2	W	95W	80	160	U
(Leex1831)x13212-2087	60.8	40.3	67	31	2	76.3	1.68	13.6	S	51.9	.46	12.9	S	U	59.3	1	58.3	1-1/2	VW	110W	80	157	U
(Leex1831)x13212-2088	60.1	39.7	67	30	3	76.2	1.65	13.9	S	51.9	.53	13.7	S	U	63.8	4	62.8	2-1/2	M-W	110W	800	169	U
(Leex1831)xRH1935-2094	62.3	36.1	65	33	2	76.2	1.69	13.9	S	61.8	.51	13.7	N	Q	65.7	4	64.7	2-1/4	M	110W	800	164	U-Q
(Leex1831)xRH1935-2102	60.5	33.9	51	47	2	75.5	1.73	13.4	S	61.2	.49	12.9	N	Q	64.7	3	63.7	1-1/2	W	110W	90	156	U
(Leex1831)xRH1935-2107	60.7	35.0	53	44	3	75.5	1.75	13.5	S	59.3	.53	13.2	N-S	U	64.4	5	63.4	3	M	100W	90	150	Q
LeexB6-2121	61.2	36.9	57	41	2	75.8	1.64	13.2	S	58.3	.52	12.8	N-S	U	64.7	5	63.7	3-1/4	M	110W	90	166	S
Rushmore (Check)	59.9	31.9	67	50	3	75.2	1.85	13.7	S	62.2	.50	13.3	N	Q-S	62.5	5	61.5	4	M	100	90I	162	S
(Lee-1831)xRH1935-2109	60.6	35.1	61	36	3	75.9	1.76	13.9	S	59.4	.53	13.7	N-S	U	65.0	4	64.0	2-1/4	W	100W	90	159	U
Lee(check)	60.9	35.5	58	40	2	75.8	1.75	14.9	S	58.1	.48	14.5	N-S	Q-U	66.3	5	65.3	3	M	110BW	800I	172	S
Selkirk(Check)	59.0	26.0	50	48	2	75.4	1.77	13.9	S	62.2	.50	13.6	N-S	Q	63.8	5	62.8	3	M	90	90	158	S

1/ Clean Dry- subtract 1#/bu. for dockage free T.W.
2/ 14% Moisture Basis.
3/ VS - Very Satisfactory, S - Satisfactory, Q - Questionable, U - Unsatisfactory.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M- Mellow, W - Weak, D - Dead.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick wall, Sl - Slightly, C - Close.

TABLE 25

SPECIAL OVERBY SAMPLES

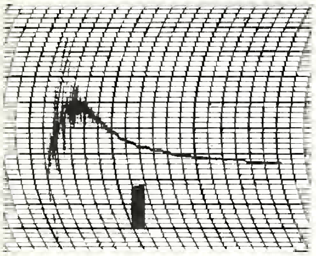
SOUTH DAKOTA

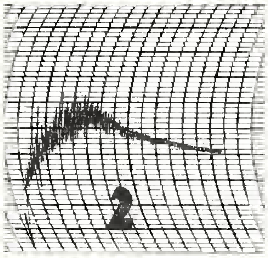
Variety	T.W. 1/	1000 Kwt.	Lg. Ker.	Med. Ker.	Sm. Ker.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Ker. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time.	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
	#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Overby #1	57.7	27.6	28	70	2	74.3	1.95	13.7	S	59.7	.43	13.3	S	U	60.0	2	60.0	2-1/4	W-M	110	90	810	Q
Overby #2	56.5	29.3	32	66	2	74.5	1.87	14.0	S-Q	60.2	.47	13.4	S	U	60.3	3	60.3	3-1/4	M	110 C	90	790	S-Q
Overby #3	58.5	30.5	32	66	2	74.5	2.05	14.7	S	52.2	.43	13.7	VS	U	59.7	2	59.7	1-1/2	VW	110	80 TW	775	U
Overby #4	58.0	31.2	33	65	2	74.6	1.92	14.9	S	59.7	.47	14.1	S	U	60.3	3	60.3	3-1/4	W-M	110 BC	95 TW	820	Q
Lee	58.5	26.4	12	85	3	73.5	1.85	13.8	S	62.3	.48	13.2	N	Q	62.5	4	62.5	4-1/4	M-S	100 W	95	830	S

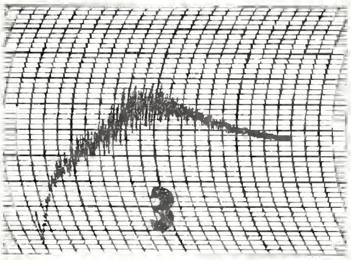
1/ Clean Dry - Subtract 1#/bu. for dockage free T.W.
2/ 14% Moisture Basis
3/ VS - Very Satisfactory, S - Satisfactory, Q - Questionable, U - Unsatisfactory.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead.
7/ C - Creamy, G - Cray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick wall, Sl - Slightly, C - Close.

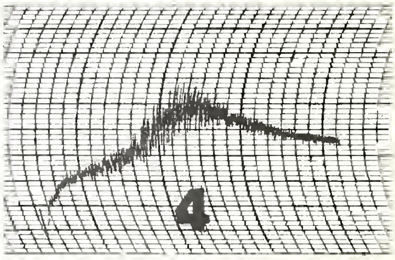
REFERENCE MIXOGRAMS

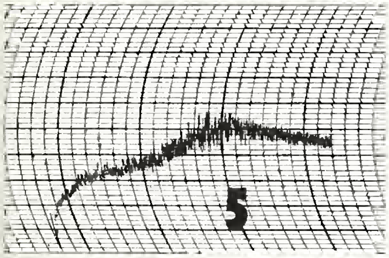
HARD RED SPRING WHEAT

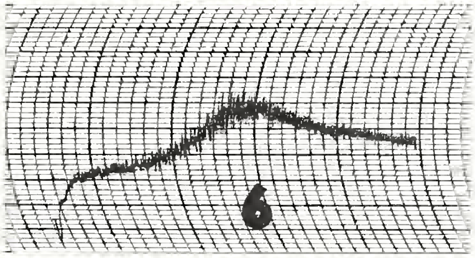


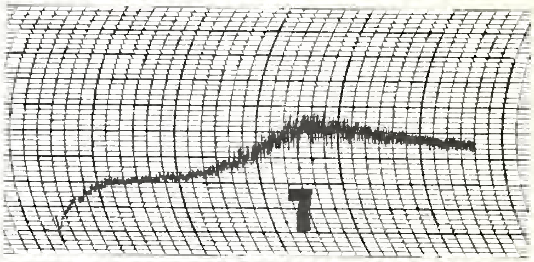


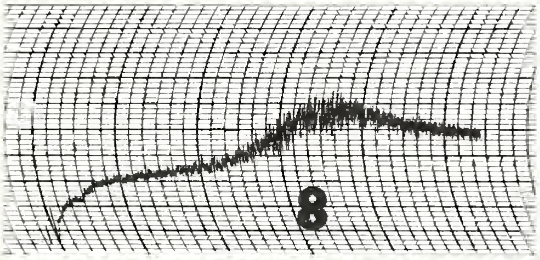


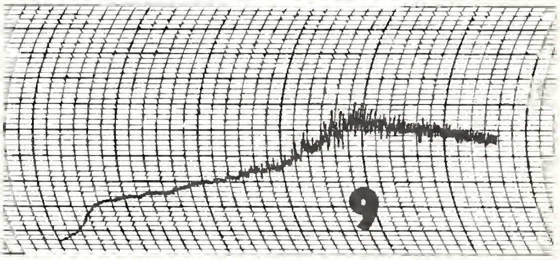


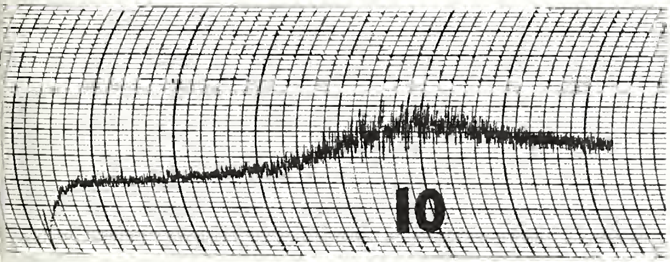


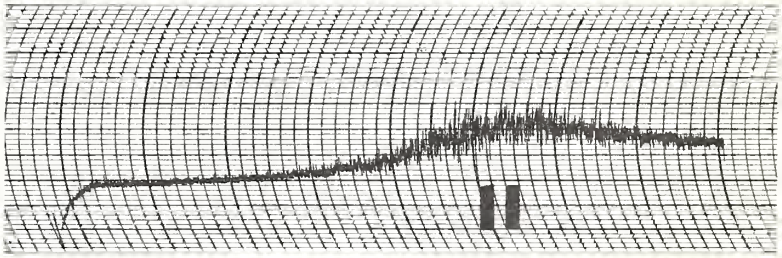












U.S.D.A. SPRING WHEAT QUALITY LABORATORY

FARGO, NORTH DAKOTA